2018

COMPREHENSIVE ANNUAL FINANCIAL REPORT | FISCAL YEARS ENDED DECEMBER 31, 2018 AND 2017

EMPLOYEES' RETIREMENT FUND
OF THE CITY OF DALLAS | DALLAS, TX

2018 AT – A – GLANCE

(unaudited)

($ in thousands)

Active Members	7,584
Benefit Recipients	7,224
Inactive Members	1,492
Fund Net Position	$3,282,313
Benefits Paid	$263,981
Refunds	$8,515
Member Contributions	$56,772
City Contributions	$60,924
Investment Rate of Return	-4.43%

The Employees' Retirement Fund provides retirement, disability and death benefits to permanent civilian employees of the City of Dallas

COMPREHENSIVE ANNUAL FINANCIAL REPORT 2018

FISCAL YEARS ENDED DECEMBER 31, 2018 AND 2017

Prepared by the Staff of The Employees' Retirement Fund

CHERYL D. ALSTON
EXECUTIVE DIRECTOR

Employees' Retirement Fund of the City of Dallas

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INTRODUCTORY SECTION

Employees' Retirement Fund of the City of DALLAS ®

LETTER OF TRANSMITTAL

August 13, 2019

Board of Trustees
Employees' Retirement Fund of the City of Dallas
1920 McKinney Avenue - 10th Floor
Dallas, Texas 75201

Dear Board Members:

The Comprehensive Annual Financial Report ("CAFR") of the Employees' Retirement Fund of the City of Dallas ("ERF" or "Fund" or "Plan") for the fiscal years ended December 31, 2018 and 2017 is submitted herewith. Our mission is to provide retirement benefits and superior service to advance the financial security of our members. Responsibility for both the accuracy of the data and the completeness and fairness of the presentation rests with the staff of ERF.

Report Contents

This CAFR is divided into five sections:

1. Introductory Section - contains this letter of transmittal, administrative organization, and the plan summary.
2. Financial Section - contains the report of the independent auditors, the financial statements of ERF, and certain required supplementary information.
3. Investment Section - contains a report on investment activity, investment policies, investment results, and various investment schedules.
4. Actuarial Section - contains an actuary's certification letter and the results of the annual actuarial valuation.
5. Statistical Section - contains significant data pertaining to ERF.

We trust that you and the members of ERF will find this CAFR helpful in understanding the retirement plan.

Plan Overview

ERF was established by ordinance in November 1943 and became effective in January 1944 after ratification by the voters of the City of Dallas. ERF is a single-employer defined benefit pension plan sponsored by the City of Dallas (the "City"), and it provides retirement, disability, and death benefits to its members. All employees of the City are members except police officers, firefighters, elected officers, non-salaried appointee members of administrative boards or commissions, temporary employees, individuals working under contract, and individuals whose salaries are paid in part by another government agency. Members are entitled to retirement benefits at the date of eligibility for retirement or to survivor benefits after two years of service.

Investments

The Board of Trustees oversees ERF's portfolio, managers, and performance, as well as reviews and approves potential investment opportunities, with input from the investment consultant and staff. The Board follows the "prudent person rule" which states that fiduciaries shall discharge their duties solely in the interest of ERF and its participants and beneficiaries with the degree of diligence, care and skill which prudent men and women would ordinarily exercise under similar circumstances in such a position.

Employees' Retirement Fund
of the City of DALLAS ®

An integral part of the overall investment policy is the strategic asset allocation policy. This policy is designed to provide an optimal diversification to reduce risk and maximize the total rate of return relative to risk. This emphasizes a maximum diversification of the portfolio that protects ERF from declines that a particular asset class may experience in a given period. The Plan had a return of -4.43% for 2018, in comparison to 13.29% in 2017 and 9.17% in 2016. The Fund expects and assumes an investment rate of 7.75% over the long term, which encompasses many years in the future.

Additions to Plan Net Position

The collection of employer and member contributions, as well as income from investments, is intended to provide the reserves needed to finance retirement benefits. Contribution and net investment income, including unrealized gains and losses, for 2018 total -$49,965,926.

City and member contributions for the fiscal year were $117,696,010, an increase of $3,554,855 from the prior year. This increase is primarily attributable to merit raises. The City's contribution rate toward the pension plan was 14.39% in 2018. The total City's contribution rate was 22.68%, of which 8.29% was for debt service payments on pension obligation bonds. The members' contribution rate remained unchanged in 2018. The City's contributions received in 2018 were $60,924,106 and members' contributions were $56,771,904.

Deductions to Plan Net Position

The principal purpose for which ERF was established is to provide retirement benefits, survivor benefits, and total and permanent disability benefits to qualified members and their beneficiaries. The cost of such programs includes recurring benefit payments, refund of contributions to terminated employees, and the cost of administering ERF.

Deductions for fiscal year 2018 totaled $279,980,888, an increase of 4.61% over 2017. This increase is primarily due to an increased number of refund applicants, an increase in benefit payments and administrative expenses. Administrative expenses, which are controlled by a budget approved by the Board of Trustees, increased from the prior year by $1,533,042 due to one-time charges.

Accounting System and Internal Controls

This CAFR was prepared to conform with Generally Accepted Accounting Principles ("GAAP") generally accepted in the United States of America that apply to government accounting for fiduciary funds. The accompanying financial statements are prepared using the accrual basis of accounting. Member and employer contributions are recognized in the period in which employee services are performed. Expenses are recorded when the corresponding liabilities are incurred, regardless of when payment is made.

The statistical section presents detailed information, typically in ten-year trends, that assists users in utilizing the basic financial statements, notes to basic financial statements, and required supplementary information to assess the economic condition of a government. The statistical section is a required part of a CAFR.

In developing and evaluating ERF's accounting system, it was determined that internal controls adequately safeguard assets and provide reasonable assurance of proper recording of financial transactions.

Employees' Retirement Fund of the City of DALLAS ®

Funding

A pension fund is well funded when it is receiving enough money to meet all expected future obligations to its participants. ERF's funding objective is to meet long-term benefit payments through contributions that remain approximately level as a percent of member payroll. The actuarial accrued liability and actuarial value of assets of ERF as of December 31, 2018 amounted to $4.527 billion and $3.620 billion, respectively. A detailed discussion of funding is provided in the Actuarial Section of this report.

Professional Services

Consultants are appointed by the Board of Trustees to perform professional services that are essential to the effective and efficient operation of ERF. An opinion from the certified public accounting firm of Grant Thornton LLP, the actuarial report from Gabriel, Roeder, Smith & Company, and the investment consultant letter from Wilshire Associates Inc. are included in this report. The consultants appointed by the Board of Trustees are listed in the Introductory Section.

Awards and Acknowledgements

The Government Finance Officers Association of the United States and Canada ("GFOA") awarded a Certificate of Achievement for Excellence in Financial Reporting to the Employees' Retirement Fund of the City of Dallas for its CAFR for the fiscal year ended December 31, 2017. The Certificate of Achievement is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports. This was the second consecutive year that ERF had achieved this prestigious award. To be awarded a Certificate of Achievement, the ERF had to publish an easily readable and efficiently organized CAFR that satisfied both GAAP and applicable program requirements.

A Certificate of Achievement is valid for a period of one year. We believe our current report continues to conform to the Certificate of Achievement Program requirements, and we are submitting it to the GFOA to determine its eligibility for another certificate.

The compilation of this report reflects the combined effort of the staff under the leadership of the Board of Trustees. It is intended to provide complete and reliable information as a basis for making management decisions, as a means of determining compliance with legal provisions, and as a means of determining responsible stewardship of the funds of ERF. The report is available to all members of ERF.

We would like to express our gratitude to the staff, the advisors, and others who have worked so diligently to assure the successful operation of ERF.

Respectfully submitted,

Cheryl D. Alston
Executive Director

Edward R. Scott
Chief Financial Officer

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Employees' Retirement Fund of the City of Dallas, Texas

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

December 31, 2017

Christopher P. Morrill

Executive Director/CEO

BOARD OF TRUSTEES

ADMINISTRATIVE STAFF

As of December 31, 2018

Cheryl D. Alston
Executive Director

David Etheridge
Deputy Executive Director

Edward Scott, CPA
Chief Financial Officer

Natalie Jenkins Sorrell
Deputy Chief Investment Officer

Duc Lam
Chief Technology Officer

Melissa Harris
Chief of Communications

Juan Carlos Ayala
Pension Benefit Specialist

Joshua Berman
Investment Analyst

Nicole Spencer Berry
Senior Pension Specialist

Anita Gage
Senior Pension Specialist

Micaela Galicia
Pension System Specialist

Yvonne Garcia
Administrative Specialist II

Re'Gine Green
Senior Pension Specialist

Todd Green
Senior Pension Specialist

Christina Henry
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Patricia Jack
Senior Pension Specialist

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System Analyst

Kaleb Jones
Senior Pension Specialist

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Administrative Specialist II

Susan Oakley
Pension Officer

Al Perez
Records Compliance Officer

Kate Shaw
Communications Specialist

Jody Thigpen
Senior Web Developer

Jason Thompson
System Administrator

Trevor Thompson
Desktop Support Engineer

Mubina Tukulic
Communications Specialist

Saki Vimal
Senior Accounting Specialist

C. Kay Watson
Pension Officer

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PROFESSIONAL SERVICE PROVIDERS

As of December 31, 2018

MASTER CUSTODIAN
The Northern Trust Company

CONSULTING ACTUARY
Gabriel, Roeder, Smith & Company

INVESTMENT CONSULTANT
Wilshire Associates, Inc.

INVESTMENT ACCOUNTING FIRM
STP Investment Services

AUDITOR
Grant Thornton, LLP

LEGAL ADVISORS
Foster Pepper, PLLC
Locke Lord, LLP

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PLAN SUMMARY

Summary of Key Provisions
Employees' Retirement Fund of the City of Dallas
As of December 31, 2018

Membership

An employee becomes a member upon permanent employment and contributes to the Plan. Tier A members were hired prior to January 1, 2017. An amendment to the governing documents passed by voters on November 8, 2016 created a new tier of benefits, Tier B, for members hired on or after January 1, 2017.

Contributions

Member: 37% of the current adjusted total obligation rate. New rates effective October 1 after the valuation date.

City: 63% of the current adjusted total obligation rate. New rates effective October 1 after the valuation date.

Definitions

Final Average Salary:

Tier A

Average monthly salary over the member's highest three years of service.

Tier B

Average monthly salary over the member's highest five years of service.

Credited Service:

Length of time as an employee of the City of Dallas and while making contributions to the Plan.

Retirement Pension

Eligibility:

Tier A

a) Attainment of age 60; or
b) Attainment of age 55 (if credited service began before May 9, 1972); or
c) At any age after completion of 30 years of credited service with a reduced benefit before age 50; or
d) Attainment of age 50, if the sum of an active member's age and credited service is at least equal to 78.

Tier B

a) Attainment of age 65 and 5 years of service; or
b) At any age after completion of 40 years of credited service; or
c) At any age if the sum of an active member's age and credited service is at least equal to 80. Under this eligibility rule, the member's pension will be actuarially reduced for each year prior to the age of 65 that the member retires.

Retirement **Benefits:**

Tier A

The retirement benefit equals 2-3/4% multiplied by average monthly salary multiplied by credited service limited to a maximum of 36.3636 years plus a monthly $125 health supplement (prorated for service less than 5 years).

Tier B

The retirement benefit equals 2-1/2% multiplied by average monthly salary multiplied by credited service limited to a maximum of 40 years (no monthly health supplement).

Form of Payment

Tier A

An unreduced pension benefit under a joint and one-half survivor option with 10 year guaranteed or a ten-year certain and life option. An actuarially equivalent joint and full survivor option is also available after 15 years of service.

Tier B

An unreduced pension payable for life with 10 years guaranteed. Actuarially equivalent joint and survivor options (50% and 100%) are also available.

Deferred Retirement **Eligibility:**

Deferred retirement pension benefit commencing at age 60 for Tier A members or at age 65 for Tier B members with at least five (5) years of credited service if accumulated contributions are left on deposit with the Fund.

Monthly Benefit:

The deferred retirement benefit is equal to the retirement pension based on earnings and credited service at the time of termination.

Disability Retirement

Pension **Non-Service Disability:**

Eligibility:

Five (5) years of service if active or ten (10) years of service if deferred vested and totally and permanently incapacitated for duty.

Monthly Benefit:

Computed based on average monthly earnings and credited service at time of disability but not less than 10 times the percentage multiplied by the average monthly earning.

Service Disability:

Eligibility:

Totally and permanently incapacitated from the further performance of duty as a result of injury while in the course of employment for the City.

Monthly Benefit:

Calculated as a non-service disability pension but not less than $1,000 per month.

Death Benefits

Form:

Benefit paid in accordance with the option on file; or the eligible option; or, if no eligible beneficiary, a lump sum equivalent of 10 years of benefit payments to the member's estate.

Monthly Benefit:

Based on average monthly earnings and credited service at death but not less than 10 times the percentage multiplier multiplied by the average monthly earnings.

Minimum Service Death Benefit:

Not less than $1,000 per month if death resulted from a service-related injury.

Return of Accumulated Contributions

A member at the time of termination is entitled to be paid accumulated member contributions without interest.

Cost-of-Living Adjustment

An annual cost-of-living adjustment to the base pension benefit shall be made based on the greater of:

a) The percentage of change in the price index for October of the current year over October of the previous year, up to 5% for Tier A and 3% for Tier B or
b) The percentage of annual average change in the price index for the 12-month period ending with the effective date of the adjustment, up to 5% for Tier A and 3% for Tier B.

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FINANCIAL SECTION

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

FINANCIAL STATEMENTS

As Of December 31, 2018 and 2017
With Independent Certified Public Accountant's Report Thereon

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GRANT THORNTON LLP
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Dallas, TX 75201-4667

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F +1 214 561 2370

REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

The Board of Trustees
Employees' Retirement Fund of the City of Dallas, Texas

We have audited the accompanying financial statements of Employees' Retirement Fund of the City of Dallas (the "Plan"), which comprise the statements of fiduciary net position as of December 31, 2018 and 2017 and the related statements of changes in fiduciary net position for the years then ended, and the related notes to the financial statements.

Management's responsibility for the financial statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility
Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Plan's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the financial statements referred to above present fairly, in all material respects, information regarding Employees' Retirement Fund of the City of Dallas' fiduciary net position as of December 31, 2018 and 2017 and changes therein for the years then ended in accordance with accounting principles generally accepted in the United States of America.

GrantThornton

Required supplementary information
Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, the Schedule of Changes in Net Pension Liability and Related Ratios, the Schedule of Money-Weighted Rates of Return, the Schedule of the Net Pension Liability, and the Schedule of Contributions be presented to supplement the basic financial statements. Such information, although not a required part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. This required supplementary information is the responsibility of management. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America. These limited procedures consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary information
Our audit was conducted for the purpose of forming an opinion on the financial statements as a whole. The Schedule of Administrative Expenses, Schedule of Investment Expenses, and Schedule of Payments for Professional Services are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such supplementary information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures. These additional procedures included comparing and reconciling the information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other information
Our audit was conducted for the purpose of forming an opinion on the financial statements as a whole. The introductory, investment, actuarial, and statistical sections are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information has not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

Grant Thornton LLP

Dallas, Texas
August 13, 2019

MANAGEMENT'S DISCUSSION AND ANALYSIS

Required Supplementary Information

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MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

The Management's Discussion and Analysis of the Employees' Retirement Fund of the City of Dallas ("the Plan") financial performance provides an overview of the financial activities and funding conditions for the fiscal years ended December 31, 2018, 2017, and 2016. The intent of this discussion and analysis is to give a narrative overview and analysis of the Plan's financial performance as a whole. For more detailed information regarding performance, readers should also review the Financial Statements, Notes to the Financial Statements, and Required Supplementary Information in order to enhance their understanding of the Plan's financial performance.

FINANCIAL STATEMENTS

The Plan is a defined benefit plan that provides retirement, disability, and death benefits to full-time and permanent part-time civilian employees of the City of Dallas" (The City). "The Plan has two basic Financial Statements:

- A Statement of Fiduciary Net Position that provides information about the fair value and composition of plan assets, plan liabilities, and Fiduciary Net Position; and
- A Statement of Changes in Fiduciary Net Position that provides information about the year-to-year changes in Fiduciary Net Position.

There are also notes to the Financial Statements that include a brief Plan description, a summary of significant accounting policies, and information about contributions, legally required reserves, investment concentrations, and the net pension liability. The report also contains required supplementary information in addition to the basic financial statements. Collectively, this information presents the Net Position Restricted for Pension Benefits and summarizes the Changes in Net Position for those benefits.

FINANCIAL HIGHLIGHTS

Fiscal year 2018 experienced a decrease in investments. The Plan's Financial Highlights for fiscal year ended December 31, 2018 are as follows:

- The Plan had a return of -4.43% for the year, with a 3-year return of 5.75%, and a 5-year return of 4.36% and 10-year return of 9.72%.
- The Net Position Restricted for Pension Benefits was $3.3 billion as of December 31, 2018. This amount reflects a decrease of $330 million from last year. This decrease is primarily the result of net declines in Master Limited Partnerships ("MLPs"), Domestic Equity, International Equity and Global Equity funds.
- Total contributions for fiscal year 2018 were $118 million, an increase of approximately $4 million from last fiscal year. This is primarily attributed to a civilian merit pay increase.
- Pension benefits paid to retirees and beneficiaries increased $10.4 million in 2018 compared to 2017, bringing the total benefit payments to $264 million. Refunds of contributions paid to former members upon termination of employment were $8.5 million for 2018 and $8.2 million for 2017.
- Net Investment Income (net appreciation/depreciation in the fair value of investments, plus interest and dividend income, less investment expenses) decreased $581 million compared to last fiscal year.
- Administrative Expenses of $7.5 million in 2018 were approximately $1.5 million more than 2017 due to one-time charges.

CONDENSED FINANCIAL INFORMATION

($ in thousands)

As of and for the FY Ended December 31,	2018	2017	2016
Fiduciary Net Position			
Assets	$4,120,996	$4,381,562	$4,053,238
Liabilities	838,683	769,302	701,195
Fiduciary Net Position for Pension Benefits	$3,282,313	$3,612,260	$3,352,043
Changes in Fiduciary Net Position			
Additions:			
Employer contributions	$60,924	$58,966	$56,130
Employee contributions	56,772	55,175	53,436
Investment & other income, net	(167,662)	413,717	295,251
Deductions:			
Benefit payments	263,981	253,534	243,775
Refund of contributions	8,515	8,156	5,864
Administrative expenses	7,484	5,951	5,343
Depreciation expense	1	-	-
Change in Fiduciary Net Position Restricted for Pension Benefits	($329,947)	$260,217	$149,835
Net Position, Beginning of Year	3,612,260	3,352,043	3,202,208
Net Position, End of Year	$3,282,313	$3,612,260	$3,352,043

FINANCIAL POSITION AND RESULTS OF OPERATIONS

The Plan's total return for fiscal year 2018 was -4.43%, as compared to 13.29% in 2017 and 9.17% in 2016. The one year return was above the policy benchmark of -4.49%. The Plan has performed well over longer time periods. The Plan's 3-year return is 5.75% and the 5-year return is 4.36% and the 10-year return is 9.72%.

The best performing asset class in 2018 was Private Equity, returning 15.11%. The Plan's Real Estate investments generated 1.09% for the year. The Real Estate investments consist of publicly traded real estate funds called Real Estate Investment Trusts ("REITS") and Domestic Private Real Estate funds. The investments in Domestic Equity returned -8.67% for the year. Overall, the Plan's investment portfolio decreased from $3.6 billion in fiscal year 2017 to $3.3 billion in 2018, a decrease of approximately $330 million.

Additions to Fiduciary Net Position consist of employer and employee contributions and investment income. For fiscal year 2018, additions to Fiduciary Net Position reflect a decrease of $578 million, in comparison to 2017. This decrease is primarily due to a reduction in the fair value of investments, specifically MLPs, International Equities, Domestic Equities, and Global Equities. City and employee contributions for fiscal year 2018 were $61 million and $57 million, respectively. Total contributions for 2018 were $118 million compared to $114 million in 2017 and $110 million in 2016.

Net investment income/(loss) is presented net of investment expenses and is comprised of interest, dividend income, gains/(losses) from the sale of investments, net unrealized appreciation/(depreciation) in the fair value of investments, and net income from securities lending activities. For fiscal year 2018, the Plan had a net investment loss of $168 million, (excluding non-investment income of $121 thousand) compared to a net investment gain of $414 million in fiscal year 2017.

Fiscal year 2018 liabilities of $839 million showed an increase of 9% over fiscal year 2017 liabilities of $769 million. Liabilities for 2017 increased $218 million or 9.71% over 2016. The increase in 2018 was primarily due to an increase in currency contracts. Year end balances for securities purchased were $9 million in 2018, $13 million in 2017 and $4 million in 2016. Currency contracts at year end were $548 million in 2018, $458 million in 2017 and $383 million in 2016. The changes were due to investment managers' portfolio management.

Deductions from Fiduciary Net Position are largely from benefit payments. During fiscal year 2018, benefits paid were $264 million, an increase of $10.4 million over payments made in 2017. The major cause of the 2018 increase is attributable to new retirements with higher base benefits, as was the increase between 2017 and 2016.

New retirements were 314, 354 and 324, respectively for fiscal years 2018, 2017 and 2016. Cost of Living Adjustments ("COLA") were 2.1% in 2018, 1.4% in 2017 and 0.0% in 2016. A COLA is granted effective January 1 of each year if there is an increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers ("CPI-W") either from October of the prior year to October of the current year or if the monthly average change is greater than zero. During fiscal year 2018, refunds of contributions amounted to $8.5 million (626 refunds), compared to 2017 refunds of $8.2 million (546 refunds) and 2016 refunds of $5.9 million (478 refunds). The fiscal year 2018 refund amount reflects an increase in the number of members requesting refunds as compared to fiscal year 2017. Administrative expenses of approximately $7.5 million represent approximately 3% of total deductions for the year.

CURRENT ENVIRONMENT

Plan membership for active members decreased during fiscal year 2018. Active membership as of December 31, 2018 decreased from 7,838 to 7,584 members, a decrease of 3.35%. For 2018, the number of new retirements was 314 compared to 354 in 2017. The trend of benefit payments continues to increase. Similar to most mature plans, benefit payments exceed the level of contribution revenue received, and cash generated from investments is needed in order to meet benefit payments.

An actuarial valuation of the Plan's assets and benefit obligations is performed annually by an independent firm, Gabriel Roeder Smith & Company ("GRS"). Based on the actuarial value of assets, the funded ratio of the Plan decreased from 82.3% in 2017 to 80.0% in 2018. The Unfunded Actuarial Accrued Liability increased from $776 million as of December 31, 2017 to $907 million as of December 31, 2018. Based on Generally Accepted Accounting Principles ("GAAP") requirements, the Plan Fiduciary Net Position as a percentage of the Total Pension Liability was 59.16% in 2018 as compared to 82.51% in 2017. This is due to a decrease in plan net position and a blended discount rate of 5.98% in 2018. See Note 10 (c) for more information regarding the discount rate.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

Statements of Fiduciary Net Position
December 31, 2018 and 2017
($ in thousands)

	2018	2017
ASSETS:		
Cash and short-term investments	$102,781	$117,468
Collateral on loaned securities	270,118	288,565
Total cash and cash equivalents	$372,899	$406,033
Capital Asset:		
Construction In Progress	$3,186	-
Furniture and Fixtures, net	17	-
Total capital assets (net)	$3,203	-
Receivables:		
Currency contracts	$547,775	$457,697
Currency contract gains	-	268
Accrued dividends	3,664	4,240
Accrued interest	9,819	9,255
Accrued securities lending	113	103
Securities sold	2,789	7,499
Employer contributions	2,058	1,788
Employee contributions	1,903	1,656
Total receivables	$568,121	$482,506
Investments, at fair value:		
Commingled index funds	$152,656	$163,761
Domestic equities	1,210,491	1,377,442
United States and foreign government fixed income securities	198,090	210,114
Domestic corporate fixed-income securities	713,543	720,300
International equities	419,497	508,457
Investments, at estimated fair value:		
Private equities	245,809	210,182
Real estate	236,687	302,767
Total investments	$3,176,773	$3,493,023
Total assets	$4,120,996	$4,381,562
LIABILITIES:		
Accounts payable	$7,455	$6,645
Payable for securities purchased	8,597	13,315
Investment fees payable	3,564	3,080
Currency contracts	547,775	457,697
Currency contract losses	1,174	-
Securities lending collateral	270,118	288,565
Total liabilities	$838,683	$769,302
NET POSITION		
Net Investment in capital assets	$3,203	-
Unrestricted	$3,279,110	$3,612,260
Net POSITION RESTRICTED FOR PENSION BENEFITS	$3,282,313	$3,612,260

The accompanying notes are an integral part of these financial statements.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

Statements of Changes in Fiduciary Net Position
December 31, 2018 and 2017
($ in thousands)

	2018	2017
Additions:		
Contributions:		
Employer	$60,924	$58,966
Employee	56,772	55,175
Total contributions	$117,696	$114,141
Net investment income:		
Dividends	$57,666	$51,902
Interest	46,217	43,151
Real estate dividend income	6,268	6,917
Net appreciation/(depreciation) in fair value of investments	(261,974)	326,541
Securities lending rebates paid by borrowers	(5,419)	(2,376)
Securities lending income	7,144	4,261
Total investment income/(loss)	($150,098)	$430,396
Less investment expenses:		
Investment management fees	($16,825)	($15,984)
Custody fees	(126)	(140)
Consultant fees	(389)	(385)
Securities lending management fees	(345)	(377)
Total investment expenses	(17,685)	(16,886)
Net investment income/(loss)	(167,783)	413,510
Other income	121	207
Total additions	($49,966)	$527,858
Deductions:		
Benefit payments	$263,981	$253,534
Refund of contributions	8,515	8,156
Administrative expenses	7,484	5,951
Depreciation expense	1	-
Total deductions	$279,981	$267,641
Net increase/(decrease) in net position restricted for pension benefits	($329,947)	$260,217
NET POSITION RESTRICTED FOR PENSION BENEFITS		
Beginning of year	$3,612,260	$3,352,043
End of year	$3,282,313	$3,612,260

The accompanying notes are an integral part of these financial statements.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

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1) Description of the Plan

a) General

The Employees' Retirement Fund of the City of Dallas ("ERF" or the "Plan") is a single-employer defined benefit pension plan that provides retirement, disability, and death benefits to its members, and is sponsored by the City of Dallas, Texas (the "City"). All employees of the City are members in the Plan, except police officers, firefighters, elected officers, non-salaried appointee members of administrative boards or commissions, part-time employees working less than one-half time, temporary employees, individuals working under contract, and individuals whose salaries are paid in part by another government agency. Members are entitled to retirement benefits after five years of service and to survivor benefits after two years of service or at the date of eligibility for retirement. The Plan was established and derives its authority to continue in operation from Chapter 40A of the Dallas City Code ("Chapter 40A"). The description of the Plan provisions in this report is for financial disclosure only. It is not intended to create or reduce legal rights. The rights and responsibilities of the Board of Trustees, the Plan, the members and the retirees are governed by the Plan as set forth in Chapter 40A. As of December 31, 2018 and 2017, the Plan's membership consisted of:

	2018	**2017**
Retirees and beneficiaries currently receiving benefits and inactive members entitled to benefits but not yet receiving them	8,716	8,290
Current members:		
Vested	4,420	4,434
Non-vested	3,164	3,404
Total current members	7,584	7,838
Total membership	16,300	16,128

b) Plan Administration

The Plan is governed by seven Board members, consisting of three members appointed by the City Council who may be Council members, three employee members of the Plan (elected by the membership) and the City Auditor (serving ex officio). The Board has general powers and duties to administer the Plan, including appointing an administrator to carry out the business of the Board, investing the assets of the Plan, making expenditures from the Plan, and determining members' eligibility for benefits.

Based on a Plan amendment passed by the voters of the City of Dallas in November 2004, the Board annually increases or decreases contribution rates in a ratio where the City pays 63% and the employee pays 37% of the contribution rate as determined by the actuarial valuation. The Plan requires notice to the City of the contribution rates and provides procedures by which the City may review and challenge those rates; codifying

EMPLOYEES' RETIREMENT FUND OF
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the Board's policies and procedures relating to the Plan's actuarial process and the City's participation in the selection of an actuarial firm to perform a peer review/audit; increasing the Board from five members to seven by adding another employee-elected representative and another council-appointed representative effective March 1, 2005; increasing from three to four the number of Board members required to constitute a quorum; increasing the terms of the employee-elected representatives from two to three years; requiring Council approval before the Board may grant temporary or permanent discretionary adjustments to retirement benefits over and above the regular cost-of-living increases; correcting section references to the term "qualified recipient"; and authorizing either the Council or the Board to propose amendments to Chapter 40A, subject to approval by the Board, the Council, and the voters of the City.

Based on a Plan amendment passed by the voters of the City of Dallas in November 2016, a new tier of benefits was added to the Plan (Tier B), effective January 1, 2017. Benefits provided to each tier of membership are outlined below.

The Plan may be terminated only by ordinance recommended by the Board, adopted by the City Council, and approved by a majority of the voters of the City voting in a general or special election. The Plan does not address allocation of the net position in the event of termination.

c) Pension Benefits

Tier A

Members of the Plan hired before January 1, 2017, are entitled to pension benefits equal to 2.75% of the average monthly earnings for each year of credited service. Average monthly earnings are based on the most beneficial to the member and are determined based on the member's earnings for the highest three calendars years, last 6,240 hours of credited service, or the length of credited service if less than three years. Normal retirement age is 55 if credited service began before May 9, 1972 or age 60.

Tier A members are also eligible to retire at age 50 if the sum of the member's age and credited service is equal to or greater than 78. Members who have completed 30 years of credited service may alternatively elect retirement before age 50; however, the pension benefits will be actuarially reduced based on the member's age at retirement.

Tier B

Members of the Plan hired on or after January 1, 2017 are entitled to pension benefits equal to 2.5% of the average monthly earnings of the member for each year of credited service. Average monthly earnings are based on the most beneficial to the member and are determined based on the member's earnings for the five highest calendar years, last 10,400 hours of credited service, or the length of credited service if less than five years. Normal retirement age is 65 with five years of credited service.

Tier B members who have completed 40 years of credited service may elect retirement at any age and are entitled to full pension benefits. Members who elect retirement before age 65 are entitled to an actuarially reduced pension benefit depending upon the age of the member. Active members may also elect to retire with actuarially reduced benefit once a combination of their age and years of service equal at least 80.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

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d) Cost of Living Adjustments ("COLA")

COLA for retirees are made each year on the first of January by adjusting the pension base by the percentage change of the Consumer Price Index ("CPI"), not to exceed 5% for Tier A and 3% for Tier B members. The cost of living adjustment effective January 2018 was 2.05% and 1.44% effective January 2017.

e) Disability and Death Benefits

Members who become totally and permanently disabled may qualify for a service-connected disability with no minimum service requirement, or a non-service connected disability with five or more years of credited service. Non-service connected benefits are based on actual credited service or a minimum of 10 years. Service-connected benefits are equal to normal retirement benefits or a minimum of $1,000.

Upon the death of an active married member with less than 15 years of service, the joint and one-half survivor option is the automatic death benefit.

If an active member has at least 15 years of service and is eligible to retire, the member may elect the joint and full survivor option. Under this option, the member receives a reduced base pension payment which is actuarially computed based on the member's age, average monthly earnings, years of credited service at retirement, and the relative age of the spouse. Upon the death of the member, this option pays the full amount of the member's pension payment to the surviving spouse for life.

Upon the death of a member before retirement, death benefits equal to the normal retirement benefit will be paid to a qualified recipient: surviving spouse, minor child under age 18, a disabled child who became disabled before age 18, a dependent parent, or a parent over age 65. Death benefits vary depending on the beneficiary. The surviving spouse, the disabled child, or the dependent parent will receive a lifetime benefit unless the ten-year option is taken. The minor child under age 18 will receive the normal retirement benefit for ten years or until reaching age 18. If the member has less than two years of credited service, the member's contributions will be refunded.

Upon the death of a retired member, a death benefit is paid in accordance with the option selected by the member at retirement. If there are no qualified recipients at the time of death and benefits have not been paid for ten years, death benefits are paid to the designee (an estate, a person or an entity) named by the member. The designee will receive a lump-sum payment based on ten years of benefit payments when the member's death occurs before retirement. If death occurs after retirement, the designee will receive a commuted lump-sum payment representing the balance of a guaranteed ten-year period starting from the date of retirement.

If a member does not have an eligible beneficiary, death benefits will be paid to the designee or member's estate in one commuted value payment. Benefit payments will vary depending on whether death occurred before or after retirement. Upon the death of a member before retirement, the designee or member's estate will receive a lump-sum payment based on ten years of benefit payments. Upon the death of a retired member, the designee or estate will receive a commuted value lump-sum payment representing the balance of a guaranteed ten-year period starting from the date of retirement.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

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f) Contributions

If employment ends before attaining five years of service and before attaining eligibility for retirement, the member's contributions will be refunded upon written request to the Plan.

If a member's employment is terminated after five years of service, the member may elect a refund of contributions upon a written request, or the member may elect to receive pension benefits at normal retirement age equal to the amount accrued to the date of termination.

Based on the authorization in the Plan, the annual actuarial valuation will establish any new contribution rates for employees and the City. The new rates which became effective October 1, 2018 are 13.32% for employees and a combined rate of 22.68% of pay for the City. The City's 22.68% is divided into 14.39% to the Plan and 8.29% for debt service payments on the pension obligation bonds. The former rates, effective October 1, 2017, were 13.32% of pay for employees and a combined rate of 22.68% of pay for the City.

The amount contributed to the Plan may vary from the required rate as the annual required contribution is based upon covered payroll as of the actuarial valuation date, December 31, whereas contributions are calculated and paid based upon actual payrolls throughout the year. Certain factors, such as changes in benefit provisions, the size or composition of the population covered by the Plan or the actuarial assumptions used, may significantly affect the identification of trends in the amounts reported in the Schedule of Net Pension Liability and Schedule of Changes in Net Pension Liability located in the Required Supplementary Information section.

2) Summary of Significant Accounting Policies

a) Basis of Accounting

The accompanying financial statements are prepared on the economic resources measurement focus and accrual basis of accounting. Accordingly, interest earned but not received and dividends declared but not received as of the Plan's fiscal year end are recorded as accrued interest and dividends receivable, respectively. Contributions owed but not received as of the Plan's fiscal year end are recorded as contributions receivable. Benefits and refunds are recorded when paid. In addition, unsettled investment purchases and sales are accrued.

b) Administrative Expenses

Administrative expenses are paid from the Plan's contributions. The contribution rates calculated by the actuary take into consideration the expected administrative expenses.

c) Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of financial statements and the reported amount of revenues and expenses during the reporting period. Actual results could differ from those estimates.

EMPLOYEES' RETIREMENT FUND OF
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d) Investments and Investment Income

The Plan's investment policy requires that investments comply at all times with applicable local, state and federal regulations. The Plan's investment policy is based upon an asset allocation study that considers the current and expected condition of the Plan, the expected long-term capital market outlook and the Plan's risk tolerance. Unless specifically permitted in the investment manager guidelines or other governing document, the investment policy prohibits the purchase of non-negotiable securities, short sales, selling on margin, puts, calls, straddles, options, or restricted stock. Also, unless specifically authorized in a manager's individual guidelines, the investment policy prohibits the use of derivatives (See derivatives disclosure in note 3).

Marketable securities are valued at fair value based on quoted market prices, where available. Purchases and sales of securities and any resulting gain or loss are recorded on a trade-date basis. Net appreciation/(depreciation) include the Plan's gains and losses on investments bought and sold as well as held during the year. In July 2018, the Plan modified the asset allocation. The Plan's asset allocation is shown in the following table.

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EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

Notes to the Financial Statements
December 31, 2018 and 2017

Asset Class	**Allocation %**
US Equity	
Domestic Equity	15.0
Real Estate	5.0
REITs	5.0
Private Equity	5.0
MLPs	7.5
Total US Equity	37.5
Non-US Equity	
International	15.0
Global	7.5
Global Low Volatility	10.0
Total Non-US Equity	32.5
Total Equity	70.0
Credit Opportunities	5.0
Global Investment Grade	15.0
High Yield	10.0
Total Fixed Income	30.0
Total Fund Allocation	100.0

e) Private Equity

To enhance the potential for earning higher rates of return relative to its other asset classes and to provide for broader portfolio diversification, the Plan, in 2009, allocated 5% of its total Plan portfolio to Private Equity. Recognizing that Private Equity investments have higher risk levels, this target of 5.0% is to be allocated within an acceptable range of 0.0% to 7.0% of private equity-oriented investments. Funding of committed capital in the private equity portfolio can occur over an extended time period and may take several years before the total allocation is fully invested. In order to reach the allocation target, a "committed" allocation up to 1.5 times the allocation is authorized. The Plan currently has three Private Equity managers.

Investments in these funds as a limited partner are carried at estimated fair value. Estimated fair values of investments in private limited partnerships are determined by the fund managers or general partner based on the latest information available, including audited financial statements and other similar data necessary to the valuation process. The Private Equity value at December 31, 2018 and December 31, 2017 was $246 million and $210 million, respectively.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

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f) Real Estate

The Plan is authorized to allocate 5% of its portfolio to Private Real Estate. The Plan has two managers that manage Real Estate funds for a value of $237 million at December 31, 2018 and $303 million at December 31, 2017. The Plan invests in Heitman's core real estate fund, Invesco's core fund, and in Invesco II which manages 1900 McKinney, LLC.

Estimated fair values of investments in these funds are determined by the fund managers based on their best estimates using fair value estimation techniques substantiated, in part, by their audited financial statements and supported by the due diligence of the Plan investment staff.

g) Foreign Currency Transactions

The Plan may enter into forward foreign currency exchange contracts for the purchase or sale of a specific foreign currency at a fixed price on a future date as a hedge against specific transactions or portfolio position to protect the Plan against adverse currency movements. Entering into these arrangements involves the risk of dealing with counterparties and their ability to meet the terms of the contracts. These contracts are valued at fair value at the financial statement date, and any realized and unrealized gains and losses are recorded when they are incurred.

Investments denominated in foreign currencies at December 31, 2018 and 2017 were converted to U.S. dollars at the foreign exchange rates quoted at December 31, 2018 and 2017. These foreign exchange gains and losses are included in net appreciation/(depreciation) in fair value of investments in the accompanying Statements of Changes in Fiduciary Net Position.

h) Securities Lending

The Board has authorized the Plan to enter into an agreement with The Northern Trust Company ("Northern Trust") for the lending of certain of the Plan's securities (the "Securities Lending Program" or "Program") including, but not limited to, stocks and bonds to counterparty brokers and banks ("Borrowers") for a predetermined period of time and fee.

In 2009, the Board capped the securities lending exposure at $538.2 million.

i) Rate of Return

For the year ended December 31, 2018, the annual money-weighted rate of return on pension plan investment, net of investment fees, was -4.99%. The money-weighted rate of return expresses investment performance, net of investment expenses, adjusted for the changing amounts actually invested.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

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Schedule of Money-Weighted Investment Returns

For Year Ended December 31	Annual Investment Returns*
2016	8.88%
2017	13.08%
2018	-4.99%

*Annual money-weighted rate of return, net of investment fees and adjusted for the changing amounts actually invested. This schedule is intended to include information for ten years. Additional years will be included as they become available.

j) Capital Assets

Capital Assets, which include furniture, fixture, and software, are reported in Plan's Financial Statements. Capital assets are defined by the Plan as assets with an initial, individual cost of more than $5,000 and an estimated useful life in excess of two years. As the Plan constructs or develops additional Capital Assets each period, they are capitalized and reported at historical cost. The reported value excludes normal maintenance and repairs which are essentially amounts spent in relation to capital assets that do not increase the capacity or efficiency of the item or increase its estimated useful life.

Furniture and fixtures are depreciated using the straight line method over an estimated useful life of 5-20 years. Software is depreciated using the straight line method over an estimated useful life of 5-15 years. Construction in progress is not depreciated.

3) Derivatives

Derivatives are generally defined as contracts whose values depend on, or are derived from, the value of an underlying asset, reference rate, or index. The Plan has classified the following as derivatives:

a) Currency Forward Contracts

A Currency Forward is a contractual agreement between two parties to pay or receive specific amounts of foreign currency at a future date in exchange for another currency at an agreed upon exchange rate. Forward commitments are not standardized and carry credit risk due to the possible nonperformance by one of the counterparties. The maximum potential loss is the aggregate face value in U.S. dollars at the time the contract was opened; however, the likelihood of such loss is remote. No such losses occurred during fiscal years 2018 and 2017. Currency forwards are usually traded over-the-counter. These transactions are entered into hedge risks from exposure to foreign currency rate fluctuation and to facilitate trade settlement of foreign security transactions. Currency Forwards carry market risk resulting from adverse fluctuations in foreign exchange rates. Recognition of realized gain or loss depends on whether the currency exchange rate has moved favorable or unfavorable to the contract holder upon termination of the contract. Prior to termination of the contract, the Plan records the unrealized currency translation gain or loss based on the applicable exchange rates.

The Plan recognized a net realized loss on forward contracts of $2.5 million as of December 31, 2018 and a net realized gain of $830 thousand as of December 31, 2017. As of December 31, 2018, the Plan had a

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

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net unrealized loss on forward contracts of $959 thousand and a net unrealized gain of $268 thousand at December 31, 2017. These gains and losses are included in net appreciation/(depreciation) in fair value of investments in the accompanying Statements of Changes in Fiduciary Net Position.

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Currency forward contracts outstanding at December 31, 2018 and 2017 were approximately $548 million and $458 million, respectively ($ in thousands).

Currency	2018 Currency Forward Contracts Outstanding	2017 Currency Forward Contracts Outstanding
Australian Dollar	$ 36,152	$ 31,982
Brazilian Real	1,642	1,574
Canadian Dollar	31,866	31,881
Chile Peso	4,651	3,425
Chinese Yuan renminbi	2,038	-
Columbian Peso	2,341	100
Czech Koruna	2,985	4,102
Denmark Krone	249	525
Euro	29,519	28,659
Hong Kong Dollars	4,509	4,866
Hungary Forint	337	2,726
Indonesia-Rupiahs	1,088	114
Indian Rupee	11,484	5,255
Israel Shekel	1,221	-
Japanese Yen	32,826	38,122
Korean Won	-	1,722
Mexican Peso	6,082	5,564
New Zealand Dollar	23,178	14,107
Norwegian Krone	22,238	11,229
Peruvian Nuevo Sol	-	20
Philippine Peso	1,429	899
Poland Zloty	1,928	4,191
Russia Ruble	3,061	1,723
Singapore Dollar	3,501	2,252
South Africa Rand	4,561	2,940
South Korea Won	5,031	-
Swedish Krona	19,532	9,021
Switzerland Franc	11,255	9,239
Thailand Baht	152	157
Turkey Lira	519	5,315
Taiwan New Dollar	556	2,651
UK Pound	16,004	9,859
US Dollar	265,840	223,477
Totals	$547,775	$457,697

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

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b) Other Forward Contracts

Forward Contracts other than Currency Forward Contracts include rights and warrants and various other contractual agreements between two parties to buy or sell an asset at a specified price on a certain future date. Forward Contracts carry credit risk due to the possible nonperformance by one of the counterparties. The maximum potential loss is the aggregate face value in U.S. dollars at the time the contract was opened; however, the likelihood of such loss is remote. No such losses occurred during fiscal years 2018 and 2017. Forward Contracts are usually traded over-the-counter. These transactions are entered into to hedge risks from exposure to fluctuations in prices in securities, commodities, or other financial instruments. Forward Contracts carry market risk resulting from adverse fluctuations in price. Recognition of realized gain or loss depends on whether the price of the asset has moved favorable or unfavorable to the contract holder upon termination of the contract. Prior to termination of the contract, the Plan records the unrealized gain or loss based on the applicable rates.

The Plan recognized a net realized gain on Forward Contracts of $1.4 million as of December 31, 2018. As of December 31, 2018, the Plan had a net unrealized gain on Forward Contracts of $95 thousand. These gains are included in net appreciation/(depreciation) in fair value of investments in the accompanying Statements of Changes in Fiduciary Net Position.

c) Swaps

A Swap is an agreement between two or more parties to exchange a sequence of cash flows over a period of time in the future. No principal is exchanged at the beginning of the Swap. The cash flows that the counterparties exchange are tied to a notional amount. The agreements provide, at predetermined future dates, the Plan pays interest based upon a notional principal amount and receives a return based upon the underlying instrument. Notional amounts represent the volume of outstanding transactions and do not represent the potential gain or loss associated with market risk or credit risk of such instruments. Risk associated with swaps includes adverse movements in the underlying instrument.

As of December 31, 2018, the Plan had a net unrealized loss on Swaps of $310 thousand. The gains and losses are included in net appreciation/(depreciation) in fair value of investments in the accompanying Statements of Changes in Fiduciary Net Position.

d) Futures

Financial Futures are agreements to purchase or sell a specific amount of an asset at a specified delivery or maturity date for an agreed upon price. These derivative securities are used to improve yield, adjust the duration of the fixed income portfolio, circumvent changes in interest rates, or to replicate an index. Futures Contracts are standardized and traded on organized exchanges, thereby minimizing the Plan's risk. There were no outstanding futures contracts at December 31, 2018 and December 31, 2017.

The Plan recognized a net realized loss of $2.5 million. The loss is included in net appreciation/(depreciation) in fair value of investments in the accompanying Statements of Changes in Fiduciary Net Position.

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As of December 31, 2018 and 2017 open derivatives contracts values are as follows ($ in thousands):

	12/31/2018		12/31/2017	
Derivative Type	Total Notional Value	Total Fair Value	Total Notional Value	Total Fair Value
Forward Contracts	$547,775	($959)	$457,697	$268
Other Forwards	8,384	95	-	-
Swap Agreements	-	(310)	52,285	299
Totals	$556,159	($1,174)	$509,982	$567

4) Deposit and Investment Risk Disclosures

Deposits and investments of state and local governments are exposed to risks that have the potential to result in losses. The common deposit and investment risks include Custodial Credit Risk, Credit Risk, Concentration of Credit Risk, Interest Rate Risk, and Foreign Currency Risk. The required disclosures related to these risks and the Plan's exposures to these risks are disclosed in the following sections.

a) Custodial Credit Risk

In the event of a failure of the counterparty, Custodial Credit Risk is the risk that the Plan will not be able to recover the value of its investment or collateral securities that are in the possession of an outside party. The Plan's custodial credit risk policy is set forth in Chapter 40A of the Dallas City Code and in the master custody agreement which includes the Securities Lending Program. All investments are registered in the name of Employees' Retirement Fund of the City of Dallas or in the name of the Plan's custodian established through a master trust custodial agreement. The securities are held by the custodian in the name of the Plan.

As of December 31, 2018 the Plan had $2.2 million or 0.07% of its approximate $3.2 billion total investments (excluding short term investments) exposed to Custodial Credit Risk. The risk exposure at December 31, 2017 was $1.5 million or 0.04% of total investments (excluding short term investments) of approximately $3.5 billion. These exposures were uninsured and uncollateralized deposits held by custodian banks outside of the United States. The Plan has experienced no losses on these deposits during the year.

b) Concentration of Risk

Concentration of Credit Risk is the risk of loss attributed to the magnitude of an investment in a single issuer. A concentration of investments in any one single issuer of debt securities presents a greater risk for loss in the event that the issuer fails on its obligations.

The Board has contracted with third party investment managers to manage the investment portfolio of the Plan, subject to the policies and guidelines established by the Board. The Plan's Concentration of Credit Risk policy is communicated to individual managers in their guidelines through limitations or restrictions to securities, sectors, debt ratings, and other factors that may be applicable to a particular manager. As the Plan's custodian bank, Northern Trust has responsibility for the safekeeping of certain investments, handling of transactions based on the instructions of investment managers, and recordkeeping for the investment transactions.

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The Plan had no investments that individually represent 5% or more of the net position available for Plan benefits at December 31, 2018.

c) Credit Risk

Credit Risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. Credit quality ratings for the Plan's investments in Fixed Income securities as of December 31, 2018 and 2017 are included in the following schedule. Securities are rated using Standard and Poor's quality ratings as presented following in the rating scale.

The Plan's strategic Fixed Income Investment Policy allocates 30% of the total assets to Fixed Income. The policy provides for investment of up to 15% of the Fixed Income allocation in investment grade assets, up to 10% of the Fixed Income allocation in High Yield (below investment grade) assets, and up to 5% for Opportunistic Credit. The investment grade allocation also allows selected managers to invest in non-US dollar issues on an opportunistic basis up to 20% of their portfolio assets.

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Long term bond ratings as of December 31, 2018 and 2017 are as follows ($ in thousands):

		2018		2017
Quality Rating	Fair Value	% of Bond Portfolio	Fair Value	% of Bond Portfolio
AAA	$57,599	6.32%	$60,609	6.51%
AA+	17,386	1.91	24,083	2.59
AA	4,828	0.53	5,514	0.59
AA-	6,344	0.70	7,119	0.77
A+	6,919	0.76	4,307	0.46
A	5,692	0.62	5,383	0.58
A-	23,476	2.58	22,797	2.45
BBB+	16,478	1.81	24,985	2.69
BBB	16,429	1.80	13,384	1.44
BBB-	20,193	2.22	19,979	2.15
BB+	28,069	3.08	33,752	3.63
BB	43,445	4.77	48,745	5.24
BB-	56,002	6.14	76,529	8.23
B+	45,113	4.95	61,139	6.57
B	40,248	4.42	63,069	6.78
B-	36,414	3.99	48,224	5.18
CCC+	11,647	1.28	18,131	1.95
CCC	2,716	0.30	6,822	0.73
CCC-	71	0.01	1,874	0.20
CC	226	0.02	1,591	0.17
C	371	0.04	469	0.05
DDD	149	0.02	192	0.02
D	1,455	0.16	882	0.09
Not rated (NR)*	257,858	28.29	292,290	31.42
U.S. Government Fixed Income securities (NR)**	212,505	23.31	88,545	9.52
	$911,633	100.00%	$930,414	100.00%

* NR-Investments that are not rated.

**NR-U.S. Treasury Bonds and Notes are obligations of the U. S government or explicitly guaranteed by the US. government and therefore are not considered to have a credit risk.

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d) Foreign Currency Risk

Foreign Currency Risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or deposit. The Plan's Foreign Currency Risk policy is communicated to those managers who are authorized to hedge currencies in their guidelines and sets specific parameters for each manager individually.

The Plan's investment policies limit the aggregate amount that can be invested in each class of investments. The Equity Investment Policy sets an allocation of 15% of assets to international equity, 7.5% of assets to Global Equity and 10% to Global Low Volatility Equity.

The Plan's positions in International Equity securities, directly and through commingled funds, were 13.21% and 14.56% of invested assets at December 31, 2018 and 2017, respectively. The Plan's position in Global Equity securities was 3.75% and 3.24% of invested assets at December 31, 2018 and 2017, respectively. The Plan's position in Global Low Volatility Equity was 10.57% at December 31, 2018 and 10.73% at 2017. The Plan's positions in Global Fixed Income assets were 6.24% and 6.02% of invested assets at December 31, 2018 and 2017, respectively.

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December 31, 2018 and 2017

Non-US Dollar denominated investments at December 31, 2018 and 2017 were as follows ($ in thousands):

	2018 U. S. Dollars Balance of Investments			2017 U. S. Dollars Balance of Investments		
Currency	Equities	Fixed	Currency Forward	Equities	Fixed	Currency Forward
Australian Dollar	$10,060	$3,001	$36,152	$10,605	$1,117	$31,982
Australian Schilling	-	-	-	-	-	-
Belgium Franc	-	-	-	-	-	-
Brazil Real	4,332	-	1,642	3,350	-	1,574
British Pound Sterling	43,953	1,899	16,004	51,804	-	9,859
Canadian Dollar	30,783	-	31,866	36,062	-	31,881
Chile Peso	-	-	4,651	-	-	3,425
Columbia Peso	-	-	2,341	-	-	100
Czech Republic-Koruna	1,739	-	2,985	1,298-	-	4,102
Denmark Krone	7,443	-	249	7,090	-	525
Dutch Guilder	-	-	-	-	-	-
Euro	88,926	13,243	29,519	106,143	2,316	28,659
Finland Markka	-	-	-	-	-	-
French Francs	-	-	-	-	-	-
German Marks	-	-	-	-	-	-
Hong Kong Dollars	39,485	-	4,509	42,828	-	4,868
Hungary-Forint	893	-	337	1,648	-	2,726
Indian Rupee	-	-	11,484	-	-	5,255
Indonesia-Rupiahs	2,606	3,934	1,088	3,713	-	114
Israel Shekel	5,006	-	1,221	5,218	-	-
Italian Lira	-	-	-	-	-	-
Japanese Yen	81,183	-	32,826	87,550	-	38,122
Korean Won	-	-	-	-	-	1,722
Malaysia Ringgit	1,802	-	-	3,614	-	-
Mexican Peso	1,793	-	6,082	2,847	-	5,564
New Zealand Dollar	4,203	-	23,178	4,072	-	14,107
Norwegian Krone	5,256	-	22,238	6,643	-	11,229
Offshore-Chinese-Renminbi	3,153	-	2,038	-	-	-
Peruvian Nuevo Sol	-	-	-	-		20
Philippines-Pesos	1,029	-	1,429	1,248	-	899
PEI	-	-	-	-	-	-
Poland-Zloty	1,006	-	1,928	1,389	-	4,191
Qatar-Ryal	800	-	-	-	-	-
Portuguese Escudos	-	-	-	-	-	-
Russian Ruble	3,928	-	3,061	-	-	1,723
Singapore Dollar	2,406	-	3,501	4,689	-	2,252
South Africa Rand	4,206	4,258	4,561	5,668	-	2,940
South Korea-Won	14,810	-	5,031	-	-	-
Spanish Pesetos	-	-	-	-	-	-
Swedish Krona	13,005	-	19,532	14,087	-	9,021
Swiss Franc	30,817	-	11,255	30,617	-	9,239
Taiwan New Dollar	3,609	-	556	3,876	-	2,651
Thailand Baht	7,846	-	152	1,763	-	5,315
Turkish Lira	585	-	519	4,012	-	7,973
United Arab-Dirham	159	-	-	11	-	-
Total	$416,822	$26,335	$281,935	$471,093	$3,433	$34,220

EMPLOYEES' RETIREMENT FUND OF
THE CITY OF DALLAS
Notes to the Financial Statements
December 31, 2018 and 2017

e) Interest Rate Risk

Interest Rate Risk is the risk that future changes in prevailing market rates of interest will have an adverse effect on the fair value of debt investments. The fair values of securities with long terms to maturity may be highly sensitive to interest rate changes.

As of December 31, 2018 and 2017 the weighted-average maturity of the bonds by bond type are as follows ($ in thousands):

		2018		2017
Bond Category	Fair Value	Weighted Average Maturity (years)	Fair Value	Weighted Average Maturity (years)
Asset Backed Securities	$32,791	12.20	$33,419	10.19
Bank Loans	25,806	5.45	8,441	5.25
Commercial Mortgage-Backed	29,389	27.36	26,143	27.76
Corporate Bonds	493,235	7.97	516,203	7.64
Government Agencies	56,211	18.95	167,634	11.96
Government Bonds	151,413	13.33	57,660	10.66
Government Mortgage-Backed Se 194,708 curities	91,145	20.47	88,983	31.71
Index Linked Government Bonds	7,635	11.93	1,060	29.98
Municipal/ Provincial Bonds	13,729	20.80	20,832	16.20
Non-Government Backed CMOs	10,279	24.23	10,039	22.71
Total	$911,633		$930,414	
Portfolio Weighted Average Maturity		11.90		10.42

Government Mortgage Backed Securities are most sensitive to changes in interest rates as their prepayments can vary significantly with interest rate changes. This change in prepayments will generally cause the duration, or Interest Rate Risk, of these securities to increase when interest rates rise and decrease when interest rates fall. These securities represent 11.81% and 10.02% of the total fixed income portfolio for 2018 and 2017 at year end. Their fair values at year end 2018 and 2017 were $107.7 million and $103.3 million, respectively. The Plan's Interest Rate Risk policy is communicated to the Fixed Income managers through the Fixed Income Asset Policy and each manager's guidelines.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

Notes to the Financial Statements
December 31, 2018 and 2017

5) Appreciation/(Depreciation) of Investments

In 2018 and 2017, the Plan's investments, including investments bought, sold, and held during the year, appreciated/(depreciated) in value as follows ($ in thousands):

	2018	2017
Investments, at fair value:		
Commingled index funds	($14,086)	$15,714
Domestic equities	(175,581)	56,379
United States and foreign government fixed income securities	(14,947)	7,069
Domestic corporate fixed-income securities	(39,187)	3,203
International equities	(42,464)	219,894
Short-term investments	(447)	(407)
Currency contracts	260	385
	($286,452)	$302,237
Investments, at estimated fair value:		
Real estate	$11,876	$(2,718)
Private equity and venture capital funds	12,602	27,022
	($261,974)	$326,541

6) Fair Value Measurement

The Plan's investments are measured and categorized according to fair value hierarchy guidelines established by Generally Accepted Accounting Principles.

The definition of fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

These guidelines recognize a three-tiered fair value hierarchy, as follows:

Level 1: Quoted prices for identical investments in active markets;
Level 2: Observable inputs other than quoted market prices in active market; and,
Level 3: Significant unobservable inputs.

EMPLOYEES' RETIREMENT FUND OF
THE CITY OF DALLAS
Notes to the Financial Statements
December 31, 2018 and 2017

At December 31, 2018, the Plan had the following recurring fair value measurements ($ in thousands):

Investments at Fair Value Measurement
As of December 31, 2018

		Fair Value Measurements Using		
Investments by Fair Value Level	**12/31/2018**	**Level 1**	**Level 2**	**Level 3**
Cash and Short -Term Investment:				
Short-Term Investment Fund	$102,781	$102,781		
Total Cash and Short -Term Investment	$102,781	$102,781		
Fixed Income:				
Domestic Asset-Backed and Mortgage-Backed	$73,347		$73,347	
US Government and Agency Obligations	271,958		271,958	
Domestic Corporate and Taxable Municipal Bonds	543,401		543,401	
Total Fixed Income	$888,706		$888,706	
Equity:				
Domestic Common and Preferred Stock	$840,247	$838,861		$1,386
International Common and Preferred Stock	461,302	461,066	$54	182
Total Equity	$1,301,549	$1,299,927	$54	$1,568
Directly Owned Real Estate	$236,687			$236,687
Total Investments by Fair Value Level	$2,529,723	$1,402,708	$888,760	$238,255

Investments Measured at Net Asset Value	
Collective Trust	$481,095
Alternative Investments:	
Private Equity	$245,809
Private Debt	22,927
Total Alternative Investments	$268,736
Total Investments Measured at Net Asset Value	$749,831

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

Notes to the Financial Statements
December 31, 2018 and 2017

7) Securities Lending

During the year, Northern Trust lent, on behalf of the Plan, securities held by Northern Trust as Plan custodian and received cash, United States government securities, agency securities, and irrevocable bank letters of credit as collateral. Northern Trust did not have the ability to pledge or sell collateral securities absent a Borrower default. Northern Trust's Core USA Collateral Section establishes requirements for participation, collateralization levels, cash and non-cash collateral guidelines, and investment guidelines for the collateral received from borrowers. Borrowers were required to put up collateral for each loan equal to: (i) in the case of loaned securities, the collateral for which is all denominated in the same currency as the loaned securities, 102% of the fair market value of the loaned securities plus any accrued but unpaid distributions thereon, and (ii) in the case of loaned securities denominated in a different currency from the loaned securities, 105% of the fair market value of the loaned securities plus any accrued but unpaid distributions thereon. Additionally, the guidelines set maturity/liquidity requirements for the collateral received from borrowers. The following table shows for open loans at December 31, 2018 and 2017, the type of collateral held, the fair value of the securities on loan, and the fair value of the collateral held ($ in thousands).

	12/31/2018			12/31/2017		
Collateral Type	Fair Value	Collateral Market Value	Collateral Percentage	Fair Value	Collateral Market Value	Collateral Percentage
Cash	$264,410	$270,118	102%	$281,143	$288,565	103%

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EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

Notes to the Financial Statements
December 31, 2018 and 2017

The following represents the balances relating to the securities lending transactions as of December 31, 2018 and 2017 ($ in thousands):

			12/31/2018			**12/31/2017**
Securities Lent	Underlying Securities	Securities Collateral Value	Cash Collateral Investment Value	Underlying Securities	Securities Collateral Value	Cash Collateral Investment Value
Lent for cash collateral:						
Domestic equities	$119,521	$ -	$121,813	$127,383	$ -	$130,814
Domestic corporate fixed income	80,135	-	81,783	88,621	-	90,933
Global corporate fixed income	2,476	-	2,598	-	-	-
Global government fixed income	6,062	-	6,396	-	-	-
International equities	8,408	-	8,848	9,350	-	9,828
Global Agencies	199	-	203	-	-	-
US Agencies	497	-	505	724	-	740
US government fixed	47,112	-	47,971	55,065	-	56,250
Subtotal	$264,410	$ -	$270,118	$281,143	$ -	$288,565

Disclosure of securities lending income is shown gross with the associated reductions for investment expenses on the Statements of Changes in Fiduciary Net Position, and the cash collateral and associated securities lending payable is shown on the Statements of Fiduciary Net Position for December 31, 2018 and 2017. The net income from securities lending in 2018 was $1.4 million compared to $1.5 million in 2017.

8) Federal Income Tax Status

The Internal Revenue Service issued a determination letter dated May 24, 2016, stating that the Plan was designed in accordance with applicable Internal Revenue Code requirements as of that date. The Plan administrator believes that the Plan is currently designed and being operated in compliance with the applicable requirements of the Internal Revenue Code. Therefore, the Plan was qualified and the related trust was tax exempt as of the financial statement dates.

EMPLOYEES' RETIREMENT FUND OF
THE CITY OF DALLAS

Notes to the Financial Statements
December 31, 2018 and 2017

9) Capital Assets

Capital assets activity for the year ended December 31, 2018, was as follows ($ in thousands).

	Balance 12/31/2017	Increases	Decreases	Balance 12/31/2018
Capital assets not being depreciated:				
Construction in progress	$	$3,186	$	$3,186
Capital assets being depreciated:				
Furniture and fixtures		18		18
Less: Accumulated depreciation for:				
Furniture and fixtures		(1)		(1)
Total capital assets being depreciated, net		17		17
Total capital assets	$	$3,203	$	$3,203

10) Schedule of Net Pension Liability

a) The components of the net pension liability of the City at December 31, 2018 and 2017 respectively were as follows ($ in thousands).

Description	2018	2017
Total Pension Liability	$5,547,964	$4,377,844
Plan Fiduciary Net Position	3,282,313	3,612,260
Net Pension Liability	2,265,651	765,584
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	59.16%	82.51%

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

Notes to the Financial Statements
December 31, 2018 and 2017

b) Actuarial Methods and Assumptions:

Valuation date	December 31, 2017 for most recent Actuarially Determined Employer Contribution ("ADEC") shown on Schedule of Contributions
Actuarial Cost Method	Entry Age Normal
Asset Valuation Method	5-year smoothed market
Amortization Method	The ADEC is initially based on a 30-year open amortization period. As specified in the Plan's governing documents, the rate may not change from year to year if the calculated rate is less than 300 basis points different from the current rate.
Remaining Amortization Period	Not determined, see description of amortization method
Investment Rate of Return	7.75%
Salary Increases	3.25% to 6.25%, including inflation
Inflation	2.75% per year
Retirement Age	Experienced-based table of rates that are specific to the type of eligibility condition. Last updated for the December 31, 2014 valuation pursuant to an experience study of the 5-year period December 31, 2014.
Mortality	For Actives: Males – RP-2000 Employee Mortality Table for male employees, set forward 4 years. Females – RP-2000 Employee Mortality Table for female employees, set back 5 years. For Healthy Retirees: Males – RP-2000 Combined with Blue Collar Adjustment for male annuitants, with a 109% multiplier and fully generational morality using improvement scale BB. Females – RP-2000 Combined with Blue Collar Adjustment for female annuitants, with a 103% multiplier and fully generational mortality using improvement scale BB. For Disabled Lives: RP-2000 Disabled Mortality Table for male annuitants, set forward one year.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

Notes to the Financial Statements
December 31, 2018 and 2017

Other Information

Notes: There were no benefit changes during the year.

The assumptions described were for the most recent ADEC shown in the schedule of contributions. The assumptions used in determining the Net Pension Liability as of December 31, 2018 were those used in the actuarial valuation as of December 31, 2018. Please see the actuarial valuation report for a complete description of those assumptions.

The long term rate of return on pension plan investments was estimated using a building block methodology in which best-estimate ranges of expected future real rates of return are developed for each major asset class. These ranges are combined to produce the long term expected rate of return by weighting the expected future real return rates by the target asset allocation percentage and by adding expected inflation. The following table shows the best estimates of geometric real rates of return for each of the Plan's asset classes.

Asset Class	Long-Term Expected Real Rate of Return
Domestic Equity	6.25%
Global Equity	6.45
Global Equity Low Volatility	6.45
Global Fixed Income	4.95
High Yield Fixed Income	4.95
International Equity	6.45
MLPs	9.60
Opportunistic Credit	5.75
Private Equity	8.75
Real Assets	5.65
REITS	5.40

c) Discount rate: A single discount rate of 5.98% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.75% and the municipal bond rate of 3.71%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions and employer contributions will be made at the projected future contribution rates assuming that the Plan annually earns 7.75% on its market value of assets and that the number of active members remains constant in the future. Based on these assumptions and the Plan's funding policy, the last year in the single discount rate projection period for which projected benefit payments were fully funded was 2048, and the resulting single discount rate is 5.98%.

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS

Notes to the Financial Statements
December 31, 2018 and 2017

d) Sensitivity of the net pension liability to changes in the discount rate. Below is a table providing the sensitivity of the net pension liability to changes in the discount rate. In particular, the table presents the plan's net pension liability, if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher than the single discount rate:

Sensitivity of the Net Pension Liability
To the Single Discount Rate Assumption
($ in thousands)

1% Decrease	Current Single Discount Rate	1% Increase
4.98%	5.98%	6.98%
$3,006,846	$2,265,651	$1,653,805

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REQUIRED SUPPLEMENTARY INFORMATION

(unaudited)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

($ in thousands)

FY ended December 31,	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	$84,843	$81,178	$133,457	$78,020	$62,065
Interest on the Total Pension Liability	332,011	325,620	305,826	313,847	290,948
Difference between Expected and Actual Experience	4,793	(59,066)	(38,327)	(26,829)	(21,967)
Assumption Changes	1,020,969		(1,227,079)	1,238,431	292,137
Benefit Payments	(263,981)	(253,534)	(243,775)	(235,106)	(225,614)
Refunds	(8,515)	(8,156)	(5,864)	(4,854)	(4,629)
Net Change in Total Pension Liability	**$1,170,121**	**$86,042**	**($1,075,762)**	**$1,363,509**	**$392,940**
Total Pension Liability - Beginning	4,377,844	4,291,802	5,367,564	4,004,055	3,611,115
Total Pension Liability – Ending (a)	**$5,547,964**	**$4,377,844**	**$4,291,802**	**$5,367,564**	**$4,004,055**
Plan Fiduciary Net Position					
Employer Contributions	$60,924	$58,966	$56,130	$50,721	$45,833
Employee Contributions	56,772	55,175	53,436	50,742	46,536
Pension Plan Net Investment Income	(167,783)	413,5110	294,918	(53,344)	207,992
Benefit Payments	(263,981)	(253,534)	(243,775)	(235,106)	(225,614)
Refunds	(8,515)	(8,156)	(5,864)	(4,598)	(4,629)
Pension Plan Administrative Expense	(7,485)	(5,951)	(5,343)	(4,598)	(4,150)
Other	121	207	333	162	157
Net Change in Plan Fiduciary Position	**($329,947)**	**$260,217**	**$149,835**	**($196,277)**	**$66,125**
Plan Fiduciary Net Position - Beginning	3,612,260	3,352,043	3,202,208	3,398,485	3,332,360
Plan Fiduciary Net Position – Ending (b)	**$3,282,313**	**$3,612,260**	**$3,352,043**	**$3,202,208**	**$3,398,485**
Net Pension Liability – Ending (a)-(b)	**$2,265,651**	**$765,584**	**$939,759**	**$2,165,356**	**$605,570**
Plan Fiduciary Net Position as Percentage of Total Pension Liability	59.16%	82.51%	78.10%	59.66%	84.68%
Covered Employee Payroll	$423,083	$410,913	$402,077	$383,669	$363,109
Net Pension Liability as a Percentage of Covered Employee Payroll	535.51%	186.31%	233.73%	564.38%	168.95%

Notes to Schedule:

The covered employee payroll is the sum of the active members' pay for valuation purposes as of the measurement date. An active member's valuation pay is the greater of their actual pay for the just completed calendar year or their current annual rate of pay.

SCHEDULE OF MONEY-WEIGHTED RATES OF RETURN

	2018	2017	2016	2015	2014
Rate of Return	-4.99%	13.08%	8.88%	1.92%	6.52%

Note to Schedule:
This schedule is intended to show information for ten years. Additional years' information will be displayed as it comes available.

SCHEDULE OF THE NET PENSION LIABILITY (HISTORICAL)

Last 10 Fiscal Years
($ in thousands)

FY Ending December 31,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
2014	$4,004,055	$3,398,485	$605,570	84.68%	$353,650	171.23%
2015	5,367,564	3,202,208	2,165,356	59.66	383,669	564.38
2016	4,291,802	3,352,043	939,759	78.10	402,077	233.73
2017	4,377,844	3,612,260	765,584	82.51	410,913	186.31
2018	5,547,964	3,282,313	2,265,651	59.16	423,083	535.51

Notes to Schedule:

The covered employee payroll is the sum of the active members' pay for valuation purposes as of the measurement date. An active member's valuation pay is the greater of their actual pay for the just completed calendar year or their current annual rate of pay.

This schedule is intended to show information for ten years. Additional years' information will be displayed as it comes available.

SCHEDULE OF CONTRIBUTIONS

Last 10 Fiscal Years
($ in thousands)

FY Ending December 31,	Actuarially Determined Contribution1	Actual Contributions2	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2009	$20,148	$25,232	($5,084)	$373,807	6.75%
2010	33,952	27,323	6,629	336,490	8.12
2011	33,612	27,302	6,310	312,380	8.74
2012	41,570	30,363	11,207	319,274	9.51
2013	56,394	37,823	18,571	340,748	11.05
2014	61,747	45,833	15,914	353,650	12.62
2015	64,648	50,721	13,927	383,669	13.22
2016	84,316	56,130	28,186	402,077	13.96
2017	86,785	58,966	27,819	410,913	14.35
2018	90,328	60,924	29,404	423,083	14.40

Notes to Schedule:

1. The Actuarially Determined Employer Contribution ("ADEC") shown is the employer contribution based on a 30-year open amortization period prior to fiscal year 2006. Beginning in fiscal year 2006 the Current Adjusted Total Obligation Rate ("CATOR"), as specified in City Ordinance No. 25695, reduced by the member contribution rate and the debt service on the pension obligation bonds is shown.
2. Since the City's fiscal year is October 1 to September 30 and the Plan's fiscal year is the calendar year, the contribution amounts shown above are a blend of the City's two fiscal year rates that occur during the calendar year.

OTHER SUPPLEMENTARY INFORMATION

(unaudited)

SCHEDULE OF ADMINISTRATIVE EXPENSES

as of December 31, 2018

($ in thousands)

Personal services:	
Salaries	$3,409
Retirement	357
Insurance	140
Total Personal Services	**$3,906**
Professional services:	
Actuary Service	$69
Accounting & Audit Fees	102
Attorney Fees	929
Medical	11
Total Professional Services	**$1,111**
Operating Services:	
Data Processing	$243
Parking	7
Printing	62
Rent	480
Supplies and Services	124
Telephone	4
Travel and Training	165
Membership Due	11
Board Expenses	4
Indirect and Other Costs	725
Total Operating Services	**$1,825**
Furniture & Fixtures:	
Furniture	$303
Other	339
Total Furniture & Fixtures	**$642**
Total Administrative Expenses	**$7,484**

SCHEDULE OF INVESTMENT EXPENSES

as of December 31, 2018

($ in thousands)

Manager Fees	$16,825
Custodian Fees	126
Securities Lending Fees*	345
Investment Consultant Fees	389
Total Investment Expenses	**$17,685**

*Securities lending fees include broker rebates and the lending agent's fees.

SCHEDULE OF PAYMENTS FOR PROFESSIONAL SERVICES

as of December 31, 2018

($ in thousands)

Accounting and Audit:	
STP Investment Services	$56
Grant Thornton LLP	46
Actuarial:	
Gabriel, Roeder, Smith & Company	69
Legal:	
Foster Pepper PLLC	312
Locke Lord LLP	607
Miklos Cinclair PPLC	10
Medical:	
Various	11
Total Professional Services Payments	**$1,111**

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INVESTMENT SECTION

Thomas Toth, CFA
Managing Director, Wilshire Associates

May 28th, 2019

Ms. Cheryl Alston
Executive Director
Employees' Retirement Fund of the City of Dallas
1920 McKinney Avenue, 10th Floor
Dallas, TX 75201

Re: 2018 Performance Results

Dear Cheryl:

The purpose of this letter is to review the 2018 investment performance results of the Employees' Retirement Fund of the City of Dallas ("ERF", "the Fund").

After an unprecedented year of calm in 2017 where investors made money in virtually every asset class, investors had almost no positive asset markets to turn to during 2018. Stocks took investors on a wild ride in 2018 with the most dramatic drop occurring in the final month of the year. Equity markets around the world posted negative returns for 2018. Looking at broad market indices, the US market (-5.3%) outperformed relative to its developed (-13.8%) and emerging markets (-14.6%) peers. Value stocks were positive vs. growth stocks in emerging markets but negative in the US and non-US developed markets. Small caps underperformed large caps across all geographies and defensive sectors led the way with health care and utilities ending the year up +6.3% and +4.1% respectively.

Throughout the year economic data remained strong with accelerating corporate earnings growth and headline unemployment pushing into territory not seen since the 1960s, but the ongoing monetary policy tightening cycle in the U.S. and increasing trade tensions pushed up equity risk premiums and placed downward pressure on valuation multiples. Equity market returns were weighed down by commentary around the length of the current economic cycle and the potential of a slowdown in global growth. As we turn the page on another year it stands to reason that several unanswered questions will ultimately dictate the path of investment returns going forward. Will the growth rate falter? How will ongoing trade disputes affect the global economy? Will the Federal Reserve raise, pause or cut interest rates? And how will the ever-changing political climate in Washington affect Wall Street? Uncertainty embedded in these questions should give rise to a more challenging market environment than we've experienced the past few years, but a well- diversified portfolio should provide some ballast against uncertainty in periods to come.

Against this macroeconomic backdrop, the Fund's total return turned negative in 2018 closing at a loss of -4.4% as compared to the +13.3% gains earned in the prior year. Despite negative results in absolute terms, the Fund did once again outperform its asset allocation policy benchmark which ended the year down -4.5%. In stark contrast to the prior year, only two of the Fund's asset classes ended the year in positive territory. Those being Private Equity (+15.1%) and Real Estate (1.1%). The heavy sell off in Q4 pushed nearly all ERF asset class returns from positive to negative for the year-to-date period. Within global equity markets the low volatility segment held up the strongest in Q4 bringing its year-to-date return to -3.4%. Double digit declines in U.S, International and Global Equity during the fourth quarter resulted in negative year-to-date results ranging from -8.7% in U.S. equities to -17.3% for International equities. The Fund's fixed income exposures managed to post more modest losses for the year with Global Fixed Income, Opportunistic Credit and High Yield ending the year at -0.4%, -2.1% and -3.1% respectively. Looking over the longer horizon, the Fund's track record remains in good shape as it continues to track closely with the policy benchmark while outperforming over the one-, three-, five- and ten-year time periods.

Wilshire

The approved allocations as of the end of 2018 were:

Asset Class	Allocation
Domestic Equity	15.0%
International Equity	15.0%
Global Equity	7.5%
Global Low Volatility Equity	10.0%
Investment Grade Fixed Income	15.0%
High Yield	10.0%
Opportunistic Credit	5.0%
Public Real Assets	7.5%
Real Estate	10.0%
Private Equity	5.0%

Wilshire annually publishes a research paper detailing our long-term nominal return forecast for the next ten years. Our geometric return forecasts are shown below.

	TOTAL RETURN DEC 2017	TOTAL RETURN **DEC 2018**	TOTAL RETURN CHANGE	RISK DEC 2017	RISK **DEC 2018**	RISK CHANGE
INVESTMENT CATEGORIES						
US STOCK	6.25%	**7.00%**	0.75%	17.00%	**17.00%**	0.00%
DEV EX-US STOCK (USD)	6.25	**7.50**	1.25	18.00	**18.00**	0.00
EMERGING MARKET STOCK	6.25	**7.50**	1.25	26.00	**26.00**	0.00
GLOBAL STOCK	6.45	**7.45**	1.00	17.15	**17.05**	-0.10
PRIVATE EQUITY	8.75	**10.05**	1.30	28.00	**28.00**	0.00
CASH EQUIVALENTS	1.75	**2.65**	0.90	1.25	**1.25**	0.00
CORE BOND	3.55	**3.85**	0.30	5.15	**5.15**	0.00
LT CORE BOND	3.60	**4.25**	0.65	9.85	**9.85**	0.00
US TIPS	2.95	**3.00**	0.05	6.00	**6.00**	0.00
HIGH YIELD BOND	4.95	**5.90**	0.95	10.00	**10.00**	0.00
NON-US BOND (HDG)	1.30	**1.25**	-0.05	3.50	**3.50**	0.00
US RE SECURITIES	5.40	**5.65**	0.25	17.00	**17.00**	0.00
PRIVATE REAL ESTATE	6.90	**6.65**	-0.25	14.00	**14.00**	0.00
COMMODITIES	3.70	**4.35**	0.65	15.00	**15.00**	0.00
REAL ASSET BASKET	6.60	**6.40**	-0.20	8.40	**8.75**	0.35
INFLATION	1.95	**1.70**	-0.25	1.75	**1.75**	0.00
TOTAL RETURNS MINUS INFLATION						
US STOCKS	4.30	**5.30**	1.00			
US BONDS	1.60	**2.15**	0.55			
CASH EQUIVALENTS	-0.20	**0.95**	1.15			
STOCK MINUS BONDS	2.70	**3.15**	0.45			
BONDS MINUS CASH	1.80	**1.20**	-0.60			

As always, we thank you for the opportunity to be of service to ERF.

Sincerely,

Thomas Toth, CFA
Managing Director Wilshire Associates

INVESTMENT POLICIES SUMMARY

Statement of Goals

The general investment goals are broad in nature to encompass the purpose of the Fund and its investments. They articulate the philosophy by which the Board will manage the Fund's assets within the applicable regulatory constraints.

1. The overall goal of the Fund is to provide benefits, as anticipated under the Plan document, Dallas City Code Chapter 40A, to its participants and their beneficiaries through a carefully planned and executed investment program.
2. The Fund seeks to produce the highest return on investments which is consistent with sufficient liquidity and investment risk that are prudent and reasonable, given prevailing capital market conditions. While the importance of the preservation of capital is recognized, the theory of capital market pricing which maintains that varying degrees of investment risk should be rewarded with compensating returns is also recognized. Consequently, prudent risk taking is reasonable and necessary.
3. The Fund investment program shall at all times comply with existing and applicable local, state and federal regulations.

Investment Philosophy

The Fund is long term in nature, and the selection of investments is regulated by: the investment time horizon; the limits of acceptable risk; and the objective of optimizing the total rate of return. Each investment manager is authorized to execute investment transactions on behalf of the Board.

Investment decisions are made under the framework of the goal established for the rate of return, limits of acceptable risk, and Fund objectives. The goal is to optimize the return of the portfolio, as opposed to maximizing the rate of return.

The optimal portfolio mix is one that carefully equates expected rate of return with expected risk of all investment categories utilized in the portfolio. In setting the optimal mix of assets for the portfolio, the Board has developed a strategic asset allocation policy which incorporates a diversified asset mix. The strategic asset allocation is designed to provide an optimal diversification to reduce risk and maximize total rate of return relative to risk and the existing and projected liability structure.

The Board bases its investment strategy and goals on advice obtained from the investment consultant, the staff, and the external investment managers. The Board uses the annual external audit and annual actuarial valuation in its evaluation of the Fund's performance each year.

Article XVI, Section 67 of the Texas Constitution and Chapter 40A of the Dallas City Code, give complete responsibility for the management and investment actions of the Employees' Retirement Fund to the Board of Trustees. The Board is held to the standard of conduct of fiduciaries in discharging their responsibilities. According to Chapter 40A the Trustees, as fiduciaries, must carry out their functions solely in the interest of the members and beneficiaries.

Corporate Governance

The Board considers the active voting of proxies an integral part of the investment process. Proxy voting may be delegated to the discretion of investment managers retained by the Board. The managers shall be required to establish a proxy voting policy and maintain records of proxy votes and shall make these records available quarterly to the Board or its designee. The Board may at its discretion establish an overall policy of voting proxies in which case the managers' proxy voting policy shall be in accordance with that of the Board's. The Board recognizes that in certain non-U.S. markets, investment managers may, balancing the costs and benefits, not exercise proxy voting.

INVESTMENT RESULTS

The investment managers and the returns by investment category are shown in the following tables.

Time-weighted rate of return based on fair value

Investment Category	2018 Rate of Return
Public Real Assets (MLPs)	-11.01%
High Yield Bonds	-3.09
Credit Opportunities	-2.12
Domestic Equities	-8.67
Global Low Volatility	-3.38
Real Estate	1.09
Global Equities	-9.28
International Equities	-17.33
Private Equity	15.11
Global Fixed Income	-0.38
Cash Equivalents	1.88
Total Portfolio	**-4.43%**

INVESTMENT MANAGERS

Domestic Equities, REITs, Master Limited Partnerships, & Commingled Index Funds

Adelante Capital Management, LLC
Atlantic Trust
BlackRock, Inc.
CenterSquare
Channing Capital Management, LLC
Harvest Fund Advisors
Northern Trust
Redwood Investments LLC
Smith Graham & Co. Investments Advisors
Systematic Financial Management, LLP
T. Rowe Price Associates, Inc.

International Equities

Acadian Asset Management, LLC
AQR Capital Management, LLC
Ativo Capital Management LLC
Baring International Investment Limited

Global Equity

Acadian Global Low Volatility
Ariel Investments
BlackRock, Inc.
Northern Trust
Wellington Management Company, LLP

Fixed Income

Aberdeen Asset Management, Inc.
BlackRock, Inc.
Garcia Hamilton & Associates, L.P.
Neuberger Berman
Oaktree Capital Management, LLC
Securian Asset Management

Cash Equivalents

The Northern Trust Company

Private Equity

Fairview Capital Partners
Grosvenor Capital Management
Hamilton Lane

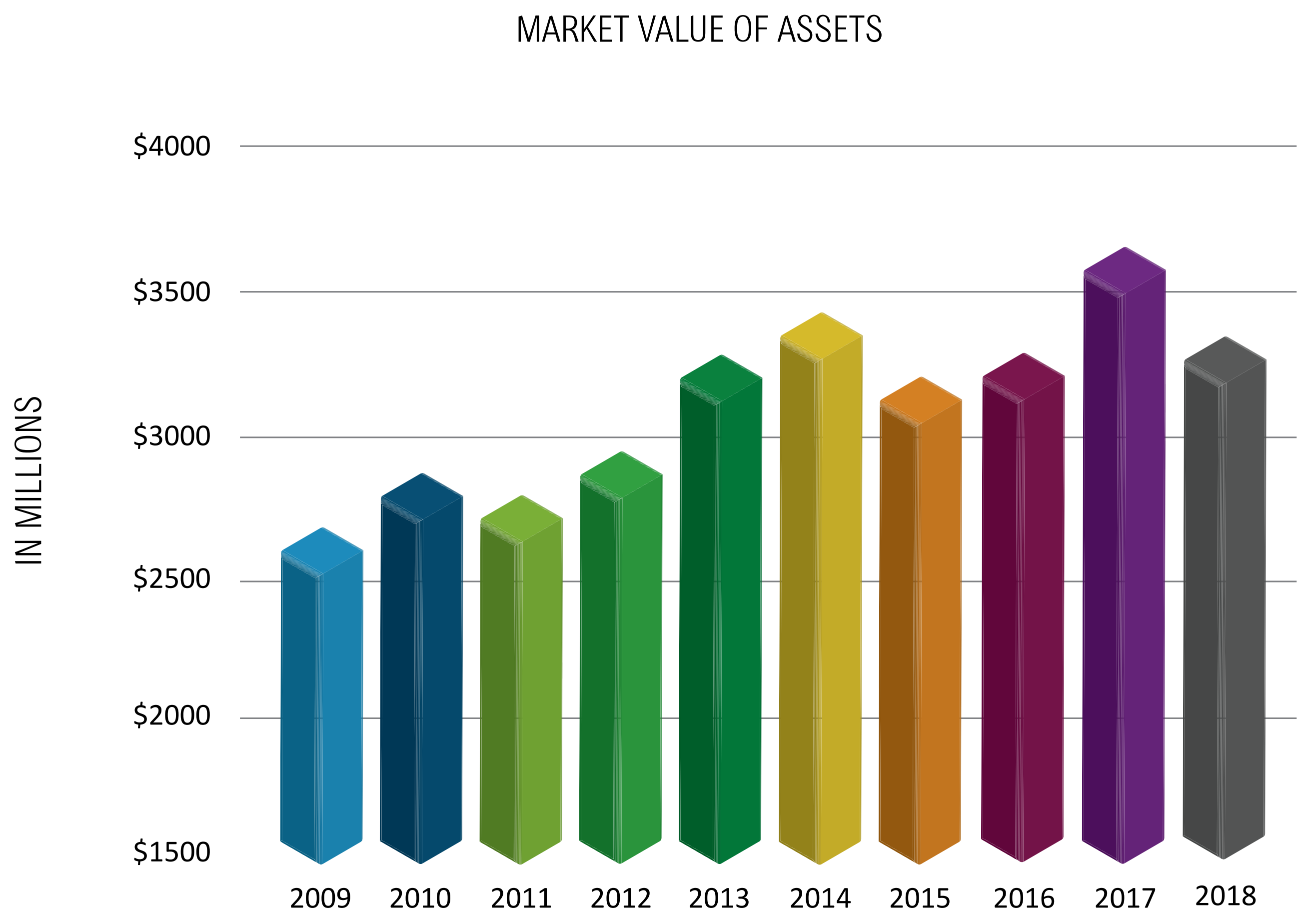
Real Estate

Heitman Real Estate Investment Management
Invesco Real Estate

TOTAL PLAN RESULTS

2018 was a difficult year for the stock market with uncertainty in monetary policy and geopolitical events. Fiscal year 2018 was down -4.43%. The best performing asset class in 2018 was Private Equity. The investment in Private Equity returned 15.11%. The Fund's Real Estate investments generated 1.09% for the year. Global Low Volatility return was -3.38% underperforming the benchmark MSCI ACWI Minimum Volatility Index of -1.56%. Global Equity had a return of -9.28% vs the MSCI ACWI of -9.42%. Domestic Equity -8.67% and International had a return of -17.3% in 2018. Our investment in Global Fixed Income returned -0.38% underperforming the benchmark of Bloomberg index of 0.01% in 2018.

At December 31, 2018, the Net Position of the Plan was $3.3 billion. This value represents a $330 million decrease over last year's value. The market value of Plan assets graph below provides a pictorial history of the Plan's growth over the past 10 years.



ASSET ALLOCATION

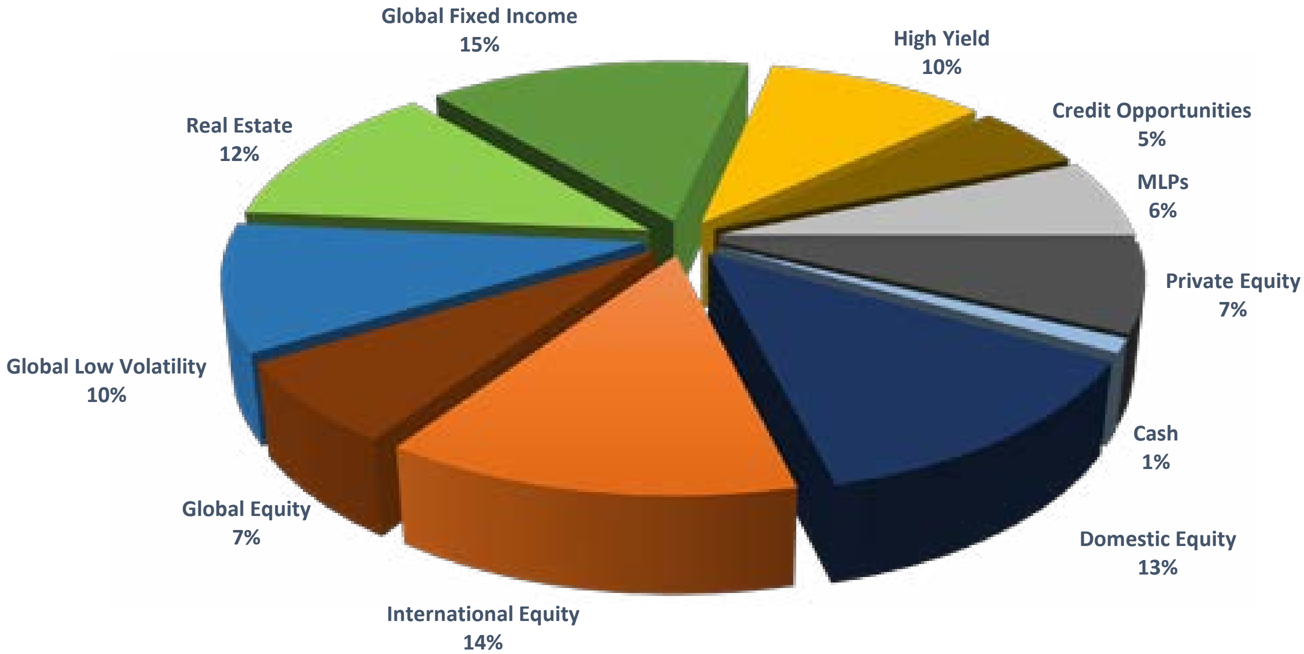
The Plan's long-term strategic asset allocation policy sets the following targets: 70% in equity and 30% in fixed income. Although no specific allocation to cash and equivalents is targeted, cash must be available for the payment of benefits and other expenses of the Plan. To accommodate constantly changing market values, the Board has approved ranges for each of the asset classes.

ASSET ALLOCATION

As of December 31, 2018

Investment Category	% of Total Fund
US Equity	
Domestic Equity	15.0
Real Estate	5.0
REITs	5.0
Private Equity	5.0
MLPs	7.5
Total US Equity	**37.5**
Non-US Equity	
International	15.0
Global Equity	7.5
Global Low Volatility	10.0
Total Non-US Equity	**32.5**
Total Equity	**70.0**
Fixed Income	
Global Investment Grade	15.0
Credit Opportunities	5.0
High Yield	10.0
Total Fixed Income	**30.0**
Total Fund	**100.0**

ACTUAL ASSET ALLOCATION*



*Source: Wilshire Associates, Inc.

CREDIT OPPORTUNITIES

Credit Opportunities has a target of 5.0% allocated to one investment manager. During the year Credit Opportunites had a return of -2.2% relative to its' custom benchmark (33% ML High Yield Master II, 33% S&P LSTA Leveraged Loan Index, 33% JPM EMBI Global Diversified Index) which returned -3.11%.

DOMESTIC, INTERNATIONAL AND GLOBAL EQUITY

The Plan's allocation to US Domestic Equity is targeted at 37.50% of the Plan's total assets including 15% to Domestic Equity, 10% allocated to Real Estate Securities and Private Real Estate, 5% to Private Equity, and 7.50% to MLPs. Passively managed index funds totaled 28.50% of Domestic Equity assets at year end, and actively managed portfolios represented the remaining 71.50% of Domestic Equity investments. Total US Equity had a return of -8.67% for the year while the benchmark Wilshire 5000 Index had a return of -5.27%.

Non-US Equity has a target allocation of 32.50%, and it is split between international Equity 15%, Global Equity 7.50% and 10% Global Low Volatility. The Plan's International Equity composite return was -17.33 % while the MSCI All World ex-US Index reported a return of -14.76% for the year, and the MSCI EAFE Index reported -13.79%. The Global Equity funds allocation reported a return of -9.28%.

GLOBAL FIXED INCOME

Global Fixed Income has a target of 15% of total assets allocated amongst three investment managers. During the year the Global Fixed Income had a return of -0.38% while the Bloomberg Aggregate Bond Index returned 0.01%.

HIGH YIELD FIXED INCOME

High Yield Fixed Income has a target of 10%. This allocation is evenly split between two investment managers. The High Yield return for 2018 was -3.09% and the Citigroup High Yield Cash Pay Index returned -2.16%.

PRIVATE EQUITY

Private Equity has a target allocation of 5.0%. This allocation is split between three investment managers. At year end the fair value was approximately 7.5% of the Fund. The rate of return for the year was 15.11%.

REAL ESTATE

Real Estate is comprised of real estate securities ("REITs") and private real estate. REITs and private real estate both have a 5.0% allocation each for a total Real Estate allocation of 10.0%. REITs had a return of -4.94% against the Wilshire Real Estate Securities Index of -4.80%, and the Private Real Estate had a return of 5.62% against the NCREIF Property Index had a return of 7.36%.

PUBLIC REAL ASSETS (MLPs)

Public Real Assets have a target allocation of 7.50%. The allocation is split between two investment managers. Public Real Assets had a return of -11.01% against the Alerian MLP index of -12.42%.

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ANNUALIZED RATE OF RETURN

As of December 31, 2018

Time-weighted rate of return based on fair value

	1-Year	3-Year	5-Year
Total Fund	**-4.43%**	**5.75%**	**4.36%**
Domestic Equity	**-8.67**	**7.96**	**7.07**
S&P 500 Index	-4.38	9.26	8.50
Wilshire 5000 Index	-5.27	9.12	8.07
International Equity	**-17.33**	**4.00**	**1.11**
MSCI ACWI ex US Index	-14.76	4.48	0.68
MSCI EAFE Index	-13.79	2.87	0.53
Global Equity	**-9.28**	**6.02**	**3.79**
MSCI ACWI	-9.42	6.60	4.26
Global Low Volatility	**-3.38**	**7.74**	
MSCI ACWI Minimum Volatility	-1.56	7.64	
MSCI ACWI	-9.42	6.60	4.26
Global Fixed Income	**-0.38**	**2.56**	**2.92**
Bloomberg Aggregate Bond Index	0.01	2.06	2.52
High Yield Fixed Income	**-3.09**	**5.62**	**3.14**
Citigroup High Yield Cash Pay	-2.16	7.17	3.46
Cash Equivalents	**1.88**	**1.01**	**0.62**
T-Bills	1.88	1.02	0.63
Real Estate	**1.09**	**4.18**	**8.14**
Wilshire RE Securities Index	-4.80	2.41	8.17
NCREIF ODCE INDEX	7.36	7.27	9.41
Private Equity	**15.11**	**11.73**	**12.50**
S&P 500 Index	4.38	9.26	8.50
Public Real Assets	**-11.01**	**0.79**	**-3.86**
Alerian MLP Index	-12.42	-1.06	-7.31

INVESTMENT MANAGEMENT FEES

As of December 31, 2018

($ in thousands)

Investment*	Assets Under Management	Fees	Basis Points
Domestic Equity	$1,156,282	$2,195	19.0
International Equity	199,640	2,485	124.5
Global Equity	219,857	2,211	100.6
Global Fixed Income	472,755	1,592	33.7
High Yield Fixed Income	315,288	1,582	50.2
Real Estate	236,687	2,153	91.0
Master Limited Partnerships	211,022	979	45.6
Private Equity	245,809	2,868	116.7
REITS	159,520	759	47.6
Subtotal	**$3,216,860**	**$16,825**	**52.2**

OTHER INVESTMENT SERVICES

As of December 31, 2018

($ in thousands)

Investment Consultant	$389
Investment Management Fees	16,825
Custodian	127
Securities Lending**	345
Total Investment expenses	**$17,685**

**Excludes cash (see Investment Holdings for cash value)*

***Securities lending fees include broker rebates and the lending agent's fees.*

TEN LARGEST HOLDINGS - EQUITY

As of December 31, 2018
($ in thousands)

Equity	Shares	Fair Value
CF BLACKROCK MSCI ACWI MINIMUM	11,302,758	$170,386,822
CF BLACKROCK EX-US SUPERFUND	5,724,651	141,385,129
MFB NTGI-QM COLTV DAILY S&P 50	13,646	119,550,037
CF HEITMAN AMERICA REAL ESTATE	74,813	92,827,501
CF INVESCO CORE RE FUND	416	76,605,206
1900 MCKINNEY HARWOOD, LLC	63,865,732	62,738,553
CREDIT SUISSE DALLAS ERF PARTN	44,404,474	51,479,049
GCM GROSVENOR - DALLAS ERF PAR	44,849,412	48,332,452
CF NEUBERGER HIGH INCOME FUND	726,493	33,876,812
MLP ENTERPRISE PRODS PARTNERS	2,445,591	32,306,257

TEN LARGEST HOLDINGS - FIXED INCOME

As Of December 31, 2018
($ in thousands)

Fixed Income	Par Value	Fair Value
MFO NEUBERGER BERMAN 0.443 % due 12/31/2049	$2,436,362	$22,926,170
US TREASURY N/B 2.875%2.875 % due 11/30/2023	15,350,000	15,617,428
U.S.A. TREADURY BILL 3.03.000 % due 08/15/2048	13,605,000	13,540,689
UNITED STATES OF AMER TREAS BO3.125 % due 11/15/2028	9,585,400	9,942,610
FEDERAL HOME LN BKS VAR2.490 % due 05/08/2020	6,105,000	6,102,558
U.S.A. TREASURY BOND2.875 % due 08/15/2045	6,265,000	6,101,985
U.S.A. TREASURY NOTES 2.250 % due 02/15/2021	5,670,200	5,639,411
U.S.A. TREASURY NOTES 2.250 % due 02/15/2046	5,430,000	4,896,991
U.S.A. TREASURY BOND3.125 % due 05/15/2048	4,510,700	4,596,313
U.S.A. TREASURY NOTES1.500 % due 04/15/2020	4,433,200	4,374,150

A complete list of investments is available by contacting the Employees' Retirement Fund of the City of Dallas at 1920 McKinney Avenue, 10th Floor, Dallas, Texas 75201

INVESTMENT HOLDINGS SUMMARY

As of December 31, 2018

($ in thousands)

	Market Value	Percentage of Market Value
Fixed Income		
Government Bonds	$198,090	6.05%
Corporate Bonds	713,543	21.80
Total Fixed Income	911,633	27.86
Equity		
Common Stock	$1,629,988	49.81
Index & Commingled	152,656	4.66
Total Equity	1,782,644	54.47
Real Estate		
Real Estate	$236,687	7.23
Total Real Estate	236,687	7.23
Alternative Investments		
Private Equity	$245,809	7.51
Total Alternative Investments	245,809	7.51
Cash and Equivalents		
Cash	($4,191)	-0.13
Cash Equivalents	100,125	3.06
Total Cash and Equivalents	95,934	2.93
Total Fund	$3,272,707	100.00%

ACTUARIAL SECTION

The Report of the December 31, 2018 Actuarial Valuation of the Employees' Retirement Fund of the City of Dallas

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GRS Retirement Consulting

P: 469.524.0000 | F: 469.524.0003 | www.grsconsulting.com

June 6, 2019

Board of Trustees
Employees' Retirement Fund of the City of Dallas
1920 McKinney Avenue
10th Floor
Dallas, Texas 75201

Dear Members of the Board:

We are pleased to present our report of the actuarial valuation of the Employees' Retirement Fund of the City of Dallas ("ERF" or the "Fund") as of December 31, 2018.

This valuation provides information on the funding status of ERF. It includes a determination of the actuarially calculated contribution rates for the 2019 calendar year. In addition, it also contains the information necessary to determine the current total obligation rate and the current adjusted total obligation rate for the fiscal year beginning October 1, 2019 per City Ordinance. This rate is a function of the previous year's adjusted total obligation rate, this year's actuarially calculated contribution rate, and the rate necessary to make the debt service payment on the previously issued pension obligation bonds for fiscal year 2020.

In addition, the report provides various summaries of the data. A separate report is issued with regard to valuation results determined in accordance with Governmental Accounting Standards Board (GASB) Statements 67 and 68. Results of this report should not be used for any other purpose without consultation with the undersigned. Valuations are prepared annually as of December 31st, the last day of the ERF plan year. This report was prepared at the request of the Board and is intended for use by the ERF staff and those designated or approved by the Board. This report may be provided to parties other than ERF staff only in its entirety and only with the permission of the Board.

As authorized in Chapter 40A-4(a)(16) of the Dallas City Code, the actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the plan's actuary. An experience investigation was performed for the five year period ending December 31, 2014. As a result of that study, revised assumptions were adopted by the Board effective with the valuation as of December 31, 2014. These assumptions were further modified effective December 31, 2016. We believe the assumptions are internally consistent, reasonable, and, where appropriate, based on the actual experience of the ERF. All of the assumptions and methods used in this valuation were selected in compliance with the Actuarial Standards of Practice. All actuarial assumptions and methods are described under Section P of this report.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions.

Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. Due to the limited scope of this assignment, GRS did not perform an analysis of the potential range of such possible future differences. The actuarial calculations are intended to provide information for rational decision making. Other than the sensitivity analysis shown in Section L, this report does not include a more robust assessment of the future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This valuation is based on the provisions of ERF in effect as of the valuation date, data on the ERF membership and information on the asset values of the Fund as of December 31, 2018. The member, annuitant and asset data used in the valuation were all prepared and furnished by ERF staff. While certain checks for reasonableness were performed, the data used was not audited.

To the best of our knowledge, this report is complete and accurate and was conducted in accordance with the Actuarial Standards of Practice as set forth by the Actuarial Standards Board and in compliance with the provisions of the Dallas City Code. The undersigned are independent actuaries and consultants. Mr. Randall is an Enrolled Actuary and a Member of the American Academy of Actuaries and he meets the Qualification Standards of the American Academy of Actuaries. Both Mr. Randall and Mr. Ward have significant experience in performing valuations for large public retirement systems.

We would like to thank the ERF staff for their assistance in providing all necessary information to complete this valuation. Their courteous help is very much appreciated. We look forward to discussing this actuarial valuation report with you at your convenience. Please do not hesitate to let us know if you have any questions or need additional information.

Respectfully submitted,

Lewis Ward

Lewis Ward
Consultant

Mark R. Randall

Mark R. Randall, MAAA, FCA, EA
Chief Executive Officer

SUMMARY OF THE VALUATION

(This summary is an excerpt of the 2018 Actuarial Valuation Report. Sections referenced in this summary are available in the full report.)

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EXECUTIVE SUMMARY

($ in 000s)

The key results from the actuarial valuation of the Employees' Retirement Fund of the City of Dallas as of December 31, 2018 may be summarized as follows:

	12/31/2018	12/31/2017
Members:		
Actives	7,584	7,838
Benefit recipients	7,224	7,042
Deferred vested*	819	793
Other terminated*	673	455
Total	16,300	16,128
Covered payroll (including overtime)	$423,723	$421,269
Normal cost	$81,299	$82,871
as % of expected payroll	19.56%	20.14%
Actuarial accrued liability	$4,526,996	$4,377,844
Actuarial value of assets	$3,620,319	$3,601,612
Market value of assets	$3,265,402	$3,601,612
Unfunded actuarial accrued liability (UAAL)	$906,677	$776,232
Estimated yield on assets (market value basis)	-5.15%	12.34%
Estimated yield on assets (actuarial value basis)	5.23%	8.99%
Contribution Rates		
Prior Adjusted Total Obligation Rate	36.00%	36.00%
Current Total Obligation Rate	43.07%	41.41%
Current Adjusted Total Obligation Rate	36.00%	36.00%
Actuarial gains/(losses)		
Assets	$(88,729)	$19,847
Actuarial liability experience	$(11,356)	$61,019
Assumption and method changes		$21,916
30-year level % of pay funding cost	$146,729	$139,484
as % of payroll (Employee + City)	34.59%	33.12%
Funded ratio		
Based on actuarial value of assets	80.00%	82.30%
Based on fair value of assets	72.10%	82.30%

* Deferred vested are members who have applied for a deferred pension. Other terminations are members who have terminated and still have contribution balances in the Fund.

ACTUARIAL ASSUMPTIONS

Costs are determined using the Entry Age Normal actuarial cost method. The assumed annual investment return rate is 7.75% and includes an annual assumed rate of inflation of 2.75%.

All actuarial assumptions and methods are the same as in the prior valuation report.

Vacation Leave Conversions

Members with 20 or more years of service are assumed to convert unused vacation leave to 1.5 months of service. Other members are assumed to convert unused vacation leave to 1 month of service. No vacation leave conversion is assumed for disability retirement.

Spouse Age

The female spouse is assumed to be 3 years younger than the male spouse.

Payroll Growth Rate

In determining the level percent amortization of UAAL rate, the payroll of the entire system is assumed to increase at 2.75% each year.

Member's Pay

In determining the member's valuation salary, the greater of the prior calendar year's gross pay and the member's rate of compensation is used.

Form of Payment

For Tier A it is assumed that 60% of married active male members and 84% of married active female employees will elect a Joint & 50% Survivor form of payment. Taking into consideration the marriage assumption and the inherent subsidy in the System's Joint & 100% Survivor factors, the male employees are valued with Joint and 29.0% Survivor annuities and the female employees are valued with Joint and 16.5% Survivor annuities. It is also assumed that 100% of Tier B employees will elect the normal form of payment under Tier B.

Changes in Assumptions and Methods Since Prior Valuation

None.

ANALYSIS OF ACTUARIAL (GAINS) AND LOSSES FOR 2018

($ in 000s)

	2018
Investment Return	$88,729
Salary Increase	10,871
Age and Service Retirement	(5,097)
General Employment Termination	(1,349)
Disability Incidence	(335)
Active Mortality	(306)
Benefit Recipient Mortality	9,689
Actual vs. Expected Cost of Living Adjustment (COLA)*	(1,179)
Other	(938)
Total Actuarial (Gain)/ Loss	$100,085

* Actual COLA of 2.69% versus expected COLA of 2.75%

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SCHEDULE OF FUNDING STATUS

($ in 000s)

End of Year	Actuarial Value of Assets (a)	AAL (b)	UAAL (b-a)	Funding Ratio (a/b)	Payroll*	UAAL as % of Payroll ((b-a/c))
1998	$1,617,468	$1,750,430	$132,962	92.40%	$275,547	48.30%
1999	1,862,644	1,873,998	11,353	99.39	282,127	4.00
2000	1,997,828	2,038,078	40,250	98.03	298,355	13.50
2001	2,017,041	2,276,488	259,447	88.60	332,842	77.90
2002	1,863,701	2,399,569	535,868	77.67	324,615	165.08
2003	1,843,099	2,489,071	645,972	74.05	318,492	202.82
2004	2,482,082	2,488,270	6,188	99.75	331,201	1.87
2005	2,739,269	2,606,173	(133,096)	105.11	332,446	-40.04
2006	2,998,099	2,761,404	(236,695)	108.57	344,997	-68.61
2007	3,183,260	2,915,164	(268,096)	109.20	370,150	-72.43
2008	2,957,506	3,075,385	117,879	96.17	389,362	30.27
2009	3,031,652	3,192,120	160,468	94.97	375,164	42.77
2010	3,027,439	3,282,126	254,687	92.24	332,045	76.70
2011	2,916,746	3,391,652	474,906	86.00	318,972	148.89
2012	2,846,124	3,518,356	672,232	80.89	340,452	197.45
2013	3,074,284	3,610,845	362,477	85.14	352,486	102.83
2014	3,241,053	4,004,055	763,002	80.94	374,002	204.01
2015	3,320,387	4,129,133	808,746	80.41	404,981	199.70
2016	3,451,463	4,291,802	840,339	80.42	420,693	199.75
2017	3,601,612	4,377,844	776,232	82.27	432,854	179.33
2018	3,620,319	4,526,996	906,677	79.97	435,375	208.25

*Projected to following year.

ACTUARIAL METHODS AND ASSUMPTIONS

Entry Age Normal Method

The Entry Age Normal actuarial cost method is the actuarial valuation method used for all purposes under ERF. The concept of this method is that funding of benefits for each member should be affected as a, theoretically, level contribution (as a level percentage of pay) from entry into ERF to termination of active status. The Normal Cost ("NC") for a fiscal year under this method is determined as described in the prior paragraph for each member. The ERF NC for the year is the total of individual normal costs determined for each active member. The Actuarial Accrued Liability ("AAL") under this method is the theoretical asset balance of the normal costs that would have accumulated to date based upon current actuarial assumptions. To the extent that the assets of the fund are insufficient to cover the AAL, an UAAL develops. The actuarially calculated contribution for a year is the Normal Cost for that year plus an amount to amortize the UAAL over 30 years as a level percentage of pay.

Actuarial Value of Asset Method

The method for determining the actuarial value of assets in future years is equal to the market value of assets less a five-year phase in of the excess (shortfall) between expected investment return and actual income. The actual calculation is based on the difference between actual market value and the expected actuarial value of assets each year, and recognizes the cumulative excess return (or shortfall) at a minimum rate of 20% per year. Each year, a base is set up to reflect this difference. If the current year's base is of opposite sign to the deferred bases, then it is offset dollar for dollar against the deferred bases. Any remaining bases are then recognized over the remaining period for the base (5 less the number of years between the base year and the valuation year). This is intended to ensure the smoothed value of assets will converge towards the market value in a reasonable amount of time.

Annual Rate of Investment Return

For all purposes under the Fund, the rate of investment return is assumed to be 7.75% per annum, net of investment expenses. This rate includes an annual assumed rate of inflation of 2.75%. In addition, annual cost of living adjustments are assumed to occur on average at the rate of 2.75% per annum for Tier A members and 2.35% for Tier B members (due to the lower maximum on cost of living adjustments).

ANNUAL COMPENSATION INCREASES

Each member's compensation is assumed to increase in accordance with a table based on actual ERF experience. Sample rates follow:

Years of Service	Merit, Promotion, Longevity		General		Total	
0	3.00	%	3.25	%	6.25	%
1	3.00		3.25		6.25	
2	2.75		3.25		6.00	
3	2.00		3.25		5.25	
4	1.50		3.25		4.75	
5	1.50		3.25		4.75	
6	1.50		3.25		4.75	
7	1.00		3.25		4.25	
8	1.00		3.25		4.25	
9	0.75		3.25		4.00	
10	0.75		3.25		4.00	
11	0.75		3.25		4.00	
12	0.50		3.25		3.75	
13	0.50		3.25		3.75	
14	0.50		3.25		3.75	
15	0.50		3.25		3.75	
16	0.50		3.25		3.75	
17	0.50		3.25		3.75	
18	0.25		3.25		3.50	
19 & Over	0.00		3.25		3.25	

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

Year Ending December 31,	Active Participants	Percent Change	Covered Payroll	Percent Change	Average Salary	Percent Change
2007	8,117	-	$359,369,000	-	$44,274	-
2008	8,371	3.1%	378,021,000	5.2%	45,158	2.0%
2009	7,654	-8.6	364,237,000	-3.6	47,588	5.4
2010	7,034	-8.1	322,374,000	-11.5	45,831	-3.7
2011	6,745	-4.1	309,682,000	-3.9	45,913	0.2
2012	6,864	1.8	330,536,000	6.7	48,155	4.9
2013	6,993	1.9	342,219,000	3.5	48,937	1.6
2014	7,180	2.7	363,109,000	6.1	50,572	3.3
2015	7,477	4.1	393,186,000	8.3	52,586	4.0
2016	7,619	1.9	409,433,000	4.1	53,738	2.2
2017	7,838	2.9	421,269,000	2.9	53,747	0.0
2018	7,584	-3.2	423,723,000	0.6	55,871	4.0

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SCHEDULE OF RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS

	Added to Rolls		Removed from Rolls		Rolls-End of Year			
Year Ending December 31,	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	% Increase in Annual Allowances	Average Annual Allowances
2007	239	$7,250,468	205	$4,551,742	5,304	$142,267,609	-	$26,823
2008	383	8,905,680	211	4,684,964	5,476	154,692,846	8.7%	28,249
2009	446	9,268,740	216	4,795,982	5,706	165,826,328	7.2	29,062
2010	508	12,798,268	221	4,907,000	5,993	179,730,384	8.4	29,990
2011	404	10,012,165	198	4,396,317	6,199	193,851,170	7.9	31,271
2012	325	9,795,464	204	4,529,539	6,320	202,120,582	4.3	31,981
2013	324	11,246,955	197	4,327,990	6,447	210,027,512	3.9	32,578
2014	370	12,415,771	219	4,821,713	6,598	219,150,070	4.3	33,215
2015	476	13,777,204	318	6,847,464	6,756	226,019,290	3.1	33,455
2016	384	12,746,549	237	5,562,549	6,903	237,992,528	5.3	34,477
2017	383	9,893,931	244	6,375,641	7,042	244,768,143	2.8	34,758
2018	402	14,905,595	220	5,976,286	7,224	258,085,328	5.4	35,726

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SOLVENCY TEST

($ in 000s)

	Aggregated Accrued Liabilities for				Portions of Accrued Liabilities Covered by Reported Assets		
Valuation Date	Active and Inactive Inactive Members Contributions	Retirees and Beneficiaries	Active and Inactive Members (Employer Financed Portion)	Reported Assets	(5)/(2)	[(5)-(2)]/3	[(5)-(2)-(3)]/(4)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
December 31, 2007	$206,090	$1,591,731	$1,117,343	$3,183,260	100.0%	100.0%	100.0%
December 31, 2008	221,667	1,707,599	1,146,119	2,957,506	100.0	100.0	89.7
December 31, 2009	228,666	1,834,491	1,128,963	3,031,652	100.0	100.0	85.8
December 31, 2010	232,727	2,041,322	1,008,077	3,027,439	100.0	100.0	74.7
December 31, 2011	240,821	2,181,731	969,100	2,916,746	100.0	100.0	51.0
December 31, 2012	257,716	2,250,533	1,010,107	2,846,124	100.0	100.0	33.4
December 31, 2013	278,892	2,319,424	1,012,529	3,074,284	100.0	100.0	47.0
December 31, 2014	301,567	2,578,071	1,124,417	3,241,053	100.0	100.0	32.1
December 31, 2015	325,607	2,650,638	1,152,888	3,320,387	100.0	100.0	29.9
December 31, 2016	350,646	2,770,533	1,170,623	3,451,463	100.0	100.0	28.2
December 31, 2017	373,193	2,854,818	1,149,833	3,601,612	100.0	100.0	32.5
December 31, 2018	392,004	2,989,597	1,145,395	3,620,319	100.0	100.0	20.8

MORTALITY

Disabled Lives

RP-2000 Disabled Mortality Table for male annuitants**,** set forward one year.

Sample rates follow (rate per 1,000):

Age	Male	Female
20	23	23
30	23	23
40	23	23
50	30	30
60	43	43
70	66	66
80	116	116
90	200	200

MORTALITY

Active Members

a. Males – RP-2000 Employee Mortality Table for males, set forward 4 years.
b. Females – RP-2000 Employee Mortality Table for females, set back 5 years.

Sample rates follow (rate per 1,000):

Age	Male	Female
30	0.7	0.2
40	1.4	0.5
50	2.8	1.1
60	7.0	2.5
70	33.9	5.8
80	99.8	28.1
90	250.7	77.4

10% of active deaths are assumed to be service related.

Other Benefit Recipients

The gender-distinct RP-2000 Combined Healthy Mortality Tables with Blue Collar Adjustment are used, with male rates multiplied by 109% and female rates multiplied by 103%. The rates are projected on a fully generational basis by Scale BB to account for future mortality improvements.

Sample rates follow (rate per 1,000), with projected mortality applied:

Age	Male	Female
30	0.7	0.3
40	1.4	0.9
50	2.5	1.9
60	7.9	4.3
70	22.2	15.4
80	58.6	40.6
90	162.3	115.4

DISABILITY

A client-specific table of disability incidence with sample rates follows (rate per 1,000):

Age	Disability Rate
30	0.3
40	0.6
50	2.4
60	6.0

20% of disabilities are assumed to be service related. There is a 0% assumption of disability for members who have over 10 years of service and are eligible for retirement.

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ACTIVE MEMBERS ELIGIBLE FOR RETIREMENT (TIER A)

Upon eligibility, active members are assumed to retire as follows (rate per 1,000):

Age	Male		Female	
	First Year Eligible	Thereafter	First Year Eligible	Thereafter
48-49	100	100	100	100
50	600	550	400	350
51	500	450	400	350
52	500	330	400	350
53	450	300	400	300
54	400	280	400	250
55	350	280	300	250
56	350	280	300	250
57	350	280	300	220
58-59	350	280	300	220
	Service < 18 yrs.	Service 18 yrs.+	Service < 18 yrs.	Service 18 yrs. +
60	80	250	100	300
61	90	250	150	220
62	100	250	150	200
63	150	250	150	150
64	150	250	100	100
65	180	250	200	200
66	200	250	250	250
67	200	250	250	250
68	200	250	150	250
69	200	250	150	250
70	1,000	1,000	1,000	1,000

GENERAL TURNOVER

A table of termination rates based on ERF experience. A sample of the ultimate rates follows:

Years of Service	Terminations (per 1,000)
0	210.0
1	160.0
2	130.0
3	105.0
4	85.0
5	67.5
6	62.5
7	57.5
8	49.0
9	46.0
10-14	37.0
15-19	22.0
20 & Over	14.0

There is 0% assumption of termination for members eligible for retirement.

Mortality Improvement

Scale BB is used to project mortality improvements for Healthy Retirees on a fully generational basis. There is no projection of mortality improvement before or after the measurement date for disabled lives or active employees.

Refunds of Contributions

Members are assumed to choose the most valuable termination benefit.

Operational Expenses

The amount of estimated administrative expenses expected in the next year is assumed to be equal to the prior year's expenses and is incorporated in the Normal Cost.

Marital Status

75% of active male members and 50% of active female employees are assumed to be married.

FUNDING PROCESS

Based on the previous work of the Employees' Retirement Fund Study Committee, which was ratified by the ERF Board, the Dallas City Council and the voters of Dallas, a new funding process commenced October 1, 2005. From this date forward, a new "current adjusted total obligation rate" will be contributed jointly by the City (63%) and the Membership (37%). This Current Adjusted Total Obligation Rate will cover both the debt service tied to the pension obligation bonds issued in 2005 and the contributions to the ERF. In subsequent years, the contribution rate changes only if the actuarial valuation develops a "current total obligation rate" which differs from the "prior adjusted total obligation rate" by more than 3.00% (plus or minus).

As shown in Table 3 (under Section N) and discussed later in this report, the "Current Total Obligation Rate" (Item 4 in Table 3) exceeds the "prior adjusted total obligation rate" (Item 1 in Table 3) as of December 31, 2018. This means that the "current adjusted total obligation rate" will remain at 36.00% of active member payroll for the fiscal year beginning October 1, 2019. It should be noted that under the contribution corridor methodology, the "current adjusted total obligation rate" would have been higher if not for the maximum rate of 36.00% allowed under Chapter 40A of the Dallas City Code.

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EXPERIENCE DURING PREVIOUS YEARS

An Actuarial (Gain)/Loss Analysis [(G)/L] reviews the effects of the actual experience that differs from the assumed experience based on the actual results for the year. If any difference increases assets or reduces liabilities, we have an actuarial gain. The reverse is an actuarial loss.

On a market value return basis, the Fund returned approximately -5.15% (calculated on a dollar-weighted basis, net of investment expenses). Given this return, the actual investment income was much lower than the expected investment income on the market value of assets; therefore, an investment shortfall occurred. This shortfall is recognized this year (1/5) and partially deferred into the near future (4/5). Please see Table 6 for the determination of the actuarial value of assets (AVA) and page 47 for a description of the AVA methodology. As developed on Table 9A, there was an $89 million loss on the actuarial value of assets as of December 31, 2018. The rate of return on the actuarial value of assets for 2018 was 5.23% (calculated on a dollar-weighted basis, net of investment expenses). This result was less than the investment return assumption of 7.75%.

As developed on Table 8, ERF experienced an overall actuarial loss in calendar year 2018 in the amount of $100.1 million. Since there was an $89 million loss on the actuarial value of assets, this implies there was a liability actuarial loss of about $11.4 million derived from demographic assumptions and non-investment economic assumptions (cost-of-living-adjustment). Please see Table 9B for an analysis of the experience loss by source.

The total (G)/L for the prior 5 years is broken down as follows ($ in millions):

	2014	2015	2016	2017	2018
1) Actuarial (Gain)/Loss on Assets	($61.00)	$31.24	($16.41)	($19.85)	$88.73
2) Actuarial (Gain)/Loss on Liabilities	(21.97)	(26.83)	(32.35)	(61.02)	11.35
3) Total Actuarial (Gain) or Loss (1+2)	(82.97)	4.41	(48.76)	(80.87)	100.08

The Unfunded Actuarial Accrued Liability ("UAAL") also increased $22.9 million due to the difference between the calculated contribution rate and the actual contributions during 2018.

FUNDED STATUS

The funded status of ERF is measured by the Funded Ratio and the UAAL. The Funded Ratio is the ratio of the actuarial value of assets available for benefits to the Actuarial Accrued Liability ("AAL") of the Fund on the valuation date. Therefore, it reflects the portion of the AAL that is covered by ERF assets. The UAAL is the difference between these two amounts.

A Funded Ratio of 100% means that the funding of ERF is precisely on schedule as of the particular valuation date. In addition, an increasing funded ratio from year-to-year may also mean that the funding of ERF is on schedule. By monitoring changes in the Funding Ratio each year, we can determine whether or not funding progress is being made.

Based on the market value of assets, the Funded Ratio of ERF decreased from 82.3% as of December 31, 2017 to 72.1% as of December 31, 2018. Based on the actuarial value of assets, the Funded Ratio of ERF decreased from 82.3% as of December 31, 2017 to 80.0% as of December 31, 2018.

The UAAL increased from $776.2 million as of December 31, 2017 to $906.7 million as of December 31, 2018. Since the UAAL is positive, this implies the actuarial accrued liabilities exceed the actuarial assets of the Fund as of December 31, 2018.

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STATISTICAL SECTION

The Statistical Section provides additional historical perspective, context and detail to assist the reader using the information in the financial statements, notes to the financial statements and required supplementary information to understand the economic condition of the Plan. The schedules presented contain information on financial trends, operations, and additional analytical information on employees' membership and retirement benefits. The information in this section is obtained from CAFRs for relevant years, actuarial reports, and various internal sources.

Schedule of Additions by Source: Presents contributions, investment revenue and contributions as a percent of covered payroll for ten years.

Schedule of Deductions by Type: Presents benefit payments, administrative expenses and refunds for ten years.

Schedule of Changes in Net Position: Presents the increase or decrease in net position for ten years.

Schedule of Benefit Expenses by Type: Presents retiree, beneficiary, disability and supplemental benefit expenses for ten years.

Average Benefit Payment: Presents the average monthly benefit payment, average final salary, and number of retired members based on years of credited service for nine years. An additional year will be displayed as it becomes available.

Retired Members by Type of Benefit: Presents the number or retirees receiving various ranges of monthly benefit amounts. The information is further broken out by type of retirement and retirement option selected.

Average Age and Monthly Pension at Retirement: Presents the average age, average monthly pension, and average age at retirement based on status (members only, members and survivors, and survivors only).

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SCHEDULE OF ADDITIONS BY SOURCE

($ in thousands)

Year Ending	Member Contributions	Employer Contributions	% of Annual Covered P/R	Investment Income	Investment Professional Expenses	Other Income	Total Increases
2008	$31,839	$22,720	5.8	($971,001)	($20,926)	$1,509	($919,573)
2009	32,229	25,265	6.7	628,814	(9,637)	345	677,016
2010	31,666	27,323	8.2	409,886	(11,173)	888	458,590
2011	31,748	27,302	8.6	38,580	(14,026)	405	84,009
2012	35,644	30,371	9.6	401,532	(15,854)	429	452,122
2013	41,730	37,823	11.0	509,784	(16,286)	626	573,677
2014	46,536	45,833	12.6	226,670	(18,678)	157	300,518
2015	50,742	50,721	13.2	(35,158)	(18,185)	162	48,282
2016	53,436	56,130	13.9	310,730	(15,812)	333	404,817
2017	55,175	58,966	14.4	430,396	(16,886)	207	527,858
2018	56,772	60,924	14.4	(150,098)	(17,685)	121	(49,966)

SCHEDULE OF DEDUCTIONS BY TYPE

($ in thousands)

Year Ending	Benefit Payments	Administrative and Depreciation Expenses	Refunds	Total Deductions
2008	$156,575	$3,255	$2,742	$162,572
2009	172,493	3,315	4,273	180,081
2010	182,883	3,235	4,476	190,594
2011	195,270	3,492	4,982	203,744
2012	209,097	3,446	4,369	216,912
2013	216,988	3,595	4,405	224,988
2014	225,614	4,150	4,629	234,393
2015	235,106	4,594	4,854	244,554
2016	243,775	5,343	5,864	254,982
2017	253,534	5,951	8,156	267,641
2018	263,981	7,485	8,515	279,981

SCHEDULE OF CHANGES IN NET POSITION

($ in thousands)

Year Ending	Change in Net Position
2008	($1,082,145)
2009	496,835
2010	267,996
2011	(119,735)
2012	235,210
2013	348,689
2014	66,125
2015	(196,277)
2016	149,835
2017	260,217
2018	(329,947)

SCHEDULE OF BENEFIT PAYMENTS BY TYPE

($ in thousands)

Year Ending	Retiree	Beneficiary	Disability	Supplement	Total
2008	$138,695	$5,959	$3,979	$7,942	$156,575
2009	150,843	9,340	4,149	8,161	172,493
2010	162,042	7,984	4,322	8,535	182,883
2011	176,028	5,767	4,536	8,939	195,270
2012	187,712	7,561	4,677	9,147	209,097
2013	196,525	6,470	4,656	9,337	216,988
2014	205,172	6,147	4,743	9,552	225,614
2015	214,343	6,101	4,908	9,754	235,106
2016	220,979	7,926	4,884	9,986	243,775
2017	229,843	8,317	5,194	10,180	253,534
2018	240,186	8,276	5,109	10,410	263,981

AVERAGE BENEFIT PAYMENT

as of December 31, 2018

Retirement Effective Dates	Years of Credited Service						
	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+
Period 01/01/2018 to 12/31/2018							
Average monthly benefit	$889.35	$919.37	$1,745.08	$2,169.69	$3,130.09	$4,209.16	$5,731.43
Average final average salary	$3,062.50	$2,801.01	$4,833.83	$3,588.84	$5,116.20	$5,902.89	$6,395.12
Number of retired members	25	27	42	47	62	61	50
Period 01/01/2017 to 12/31/2017							
Average monthly benefit	$395.27	$840.28	$1,456.48	$2,422.33	$3,365.92	$4,441.36	$5,039.49
Average final average salary	$4,260.11	$1,821.11	$3,470.15	$4,985.34	$5,366.59	$6,123.49	$5,798.23
Number of retired members	12	41	51	44	53	56	37
Period 01/01/2016 to 12/31/2016							
Average monthly benefit	$325.38	$762.64	$1,487.94	$2,427.06	$2488.97	$4,170.49	$4,974.11
Average final average salary	$4,28971	$3,561.23	$4,840.13	$5,273.92	$4,942.79	$5,650.83	$5,719.72
Number of retired members	20	37	40	65	45	50	65
Period 01/01/2015 to 12/31/2015							
Average monthly benefit	$144.71	$882.40	$1,36.61	$2,125.58	$3,025.21	$4,105.72	$4,922.06
Average final average salary	$3,346.57	$4,697.46	$4,059.07	$4,581.92	$4,947.81	$5,592.10	$5,691.11
Number of retired members	4	33	24	50	46	62	57
Period 01/01/2014 to 12/31/2014							
Average monthly benefit	$327.07	$643.96	$1,451.21	$1,933.56	$2,948.51	$4,012.32	$5,568.28
Average final average salary	$3,844.96	$3,210.89	$4,108.76	$4,164.61	$4,888.48	$5,444.86	$6,371.13
Number of retired members	7	42	36	56	45	71	38
Period 01/01/2013 to 12/31/2013							
Average monthly benefit	$302.03	$577.63	$1,688.96	$2,012.42	$2,909.37	$3,823.04	$4,639.47
Average final average salary	$3,891.55	$3,100.14	$4,953.89	$4,223.11	$4,763.82	$5,259.98	$5,389.69
Number of retired members	8	29	33	33	49	62	44
Period 01/01/2012 to 12/31/2012							
Average monthly benefit	$325.10	$845.25	$1,590.56	$2,009.64	$2,829.45	$3,963.86	$4,516.58
Average final average salary	$2,932.66	$4,442.19	$4,632.86	$4,117.88	$4,570.14	$5,396.80	$5,268.80
Number of retired members	12	39	32	26	39	61	32
Period 01/01/2011 to 12/31/2011							
Average monthly benefit	$323.02	$787.06	$1,259.41	$2,027.33	$3,098.78	$3,753.60	$4,262.55
Average final average salary	$3,797.67	$3,757.08	$3,701.60	$4,260.84	$5,052.09	$5,105.35	$4,990.11
Number of retired members	15	33	41	48	58	105	61
Period 01/01/2010 to 12/31/2010							
Average monthly benefit	$223.93	$734.08	$1,302.73	$1830.30	$2,995.36	$3,710.91	$4,116.13
Average final average salary	$2,594.83	$3,678.95	$4,364.32	$4,784.05	$4,903.64	$5,039.60	$4,771.62
Number of retired members	8	36	49	44	70	133	91
Period 01/01/2009 to 12/31/2009							
Average monthly benefit	$301.96	$784.21	$1,294.02	$2,149.66	$2,949.94	$3,576.69	$4,305.35
Average final average salary	$3,287.00	$3,605.72	$3,878.74	$4,396.37	$4,788.12	$4,881.66	$4,969.17
Number of retired members	27	25	36	37	65	110	79
Period 01/01/2008 to 12/31/2008							
Average monthly benefit	$256.93	$992.79	$1,160.28	$2,059.59	$2,717.68	$3,490.12	$4,168.44
Average final average salary	$3,816.62	$4,34754	$3,472.80	$4,301.64	$4,446.61	$4,739.25	$4,930.47
Number of retired members	8	33	26	18	68	73	38

* Data includes disability retirements

RETIRED MEMBERS BY TYPE OF BENEFIT

As of December 31, 2018

Amount of Monthly		Type of Retirement							Option Selected		
Benefits		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**#1**	**#2**	**#3**
$1	$250	52		1					11	16	37
$251	$500	130	1	43	31		1	2	22	83	108
$501	$750	212	5	50	53		4	28	38	154	155
$751	$1,000	242	8	69	35	10	17	23	52	175	166
$1,001	$1,250	223	9	66	25	6	13	15	54	143	154
$1,251	$1,500	226	13	62	13	8	15	5	72	119	159
$1,501	$1,750	236	10	68	15	12	15	6	63	127	172
$1,751	$2,000	236	18	53	12	35	8	5	95	112	135
over	$2,000	4,148	136	342	74	10	46	23	1,178	1,948	1,676
Total		5,705	200	754	258	81	119	107	1,585	2,877	2,762

a) Type of Retirement

1) Normal retirement

2) Early retirement

3) Beneficiary payment, normal or early retirement

4) Beneficiary payment, service connected death

5) Service connected disability retirement

6) Non-Service connected disability retirement

7) Beneficiary payment, disability retirement

b) Option Selected

1) Joint & 100%-beneficiary receives 100% of member's benefit

2) Joint & 50%-beneficiary receives 50% of member's benefit

3) 10 Year Certain-beneficiary receives member's unused benefits

AVERAGE AGE AND MONTHLY PENSION AT RETIREMENT

As of December 31, 2018

Status	Average Age	Average Pension	Average Age at Retirement
Members Only	69	$3,286.00	57.03
Members and Survivors	70	$3,076.00	N/A
Survivors Only	74	$1,954.00	N/A

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